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GENERAL ANÆSTHESIA IN ORAL SURGERY.[1]

By G. R. TROUP, M.B. (Melbourne), M.R.C.P. (London),
Honorary Anæsthetist, Perth Hospital and Children's Hospital, Perth.

I DO not propose dealing with the general anæsthesia required for the minor and short operations in oral surgery. Such cases are more or less adequately catered for by ethyl chloride, with either the closed or open method; mixtures of nitrous oxide, ethyl chloride and oxygen by the closed method; or the asphyxiation method of nitrous oxide alone. In the light of modern anæsthesia the wisdom of using these methods in even the abovementioned type of case is open to criticism.

For the ideal general anæsthetic in the types of oral surgery requiring a lengthy period of time the following requirements may be demanded:

1. A minimum of toxicity in the anæsthetic agent used.
2. A pleasant form of induction for the patient.
3. A method of administering the anæsthetic: (*a*) that is going to prevent blood or foreign bodies finding their way into the trachea, (*b*) that maintains a constant free airway, (*c*) that eliminates the anæsthetist and his apparatus from the field of the surgeon, (*d*) that carries the expired air from the patient away from the air inspired by the surgeon and his assistants.
4. A minimum of post-anæsthetic discomfort.

Ether given by the open method and chloroform or ether and chloroform given intrapharyngeally by such methods as the Shipway apparatus or the Junker inhaler were, and still are, largely used to attain the desired end.

Rectally administered ether or paraldehyde, rectally administered "Avertin" and the various barbiturates, either orally or intravenously, have been used either as the sole method or as adjuvants to other types of anæsthesia.

[1] Read at a meeting of the Western Australian Branch of the British Medical Association and of the Odontological Society of Western Australia on October 19, 1932.

The continuous administration of gases such as nitrous oxide, ethylene or acetylene, combined with oxygen, and given by means of a nasal inhaler, with machines such as the McKesson, Heidebrink, "S.O.S." or "Austox", have also been largely used.

The somewhat disfiguring operation of preliminary tracheotomy with administration of the anæsthetic below the site of the oral operation has been used for many years successfully to the same end.

All these different methods leave much to be desired in the attainment of the ideals laid down.

With our present knowledge of anæsthesia these ideals are probably best arrived at today by the following technique. After efficient prenarcosis or basal anæsthesia the patient is fully anæsthetized by means of gas-oxygen, with, if necessary, the addition of ether, to enable either one or two endotracheal tubes to be inserted into the trachea, either by the mouth or nose. If only one tube is used, it must be of sufficiently wide bore to allow free to and fro breathing, and it must have an expiratory valve attached. The single tube, or one of the two tubes, is then attached to an apparatus which will maintain anæsthesia with gas oxygen and, if necessary, ether. Such a machine is the Magill. (See Figure I.)

Figure I.

It consists of two flowmeters which can accurately register the amount of gas and oxygen in litres per minute passing through the machine. The mixture of gases can then be added to by carbon dioxide, chloroform or ether, if necessary, as shown in the illustration. With a suitable gas mask, expiratory valve and rebreathing bag the Magill apparatus can be used to induce anæsthesia with gas-oxygen as well as to maintain anæsthesia when the tubes are in position.

A pack such as a two inch bandage soaked in a weak antiseptic solution is then packed gently but firmly round the tube or tubes just above the glottis.

The introduction of the endotracheal tube through the nose is specially applicable to oral surgery as it removes the tube entirely from the field of the surgeon. The tube used (Figure II) can be introduced with practice in the majority of cases without the aid of a laryngoscope.

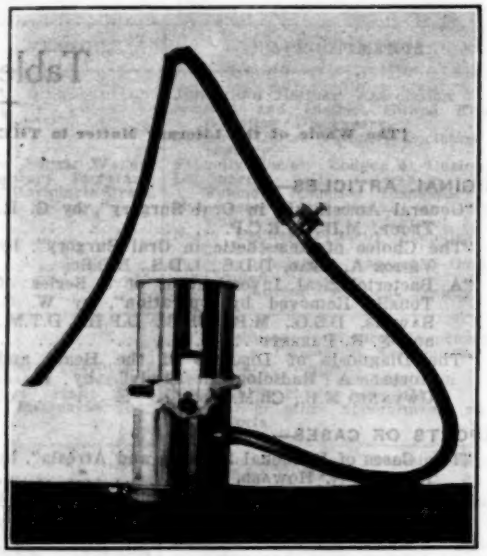


Figure II.

The preliminary spraying of the cords with a 20% solution of cocaine is of definite use in the case of introduction.

In answer to possible criticism of the use of the large bore tube or the cocaine solution, I can only quote Magill, to whom we owe this advance in anæsthetic methods, who states that he has been using both for the last ten years and has never had results which warranted his giving up either.

When the cautery or diathermy has to be used, a maintenance anæsthesia by nitrous oxide-oxygen alone is necessary, and this can usually be attained by efficient prenarcosis or basal anæsthesia.

So much for the ideal anæsthesia. Unfortunately in this part of the world the price of the gases is so prohibitive that their routine use in oral surgery is a financial impossibility. One therefore has to compromise and to use ether as the basis of anæsthesia, with either air or oxygen delivered by any of the endotracheal machines on the market. The use of the endotracheal tubes is the same as in the method already outlined if oxygen is being used. When air is being delivered, the use of two endotracheal tubes is essential if a pack is to be utilized.

A simple, cheap and portable method of endotracheal inhalation applicable to oral surgery is the following. (Figures II and III.) It consists of two tins between which are placed six to eight layers of gauze. From the bottom tin emerges a tube which projects into the cavity of the tins as shown in Figure III. The tube at the bottom of the upper

tin is perforated, and lies above the gauze. It can be used to add carbon dioxide, carbogen or oxygen to the ether and air mixture without diluting the ether vapour. An expiratory valve is placed in the course of the tube leading from the catheter to the apparatus. The endotracheal rubber tube is attached to the tube leading to the apparatus by a metal angle piece, which has a more acute angle when the tube is introduced nasally than when introduced by the mouth. Anæsthesia is induced in the ordinary manner, the endotracheal rubber tube is inserted, packing is placed around the tube, connexion is made with the tin, and maintenance anæsthesia is carried on by dropping ether from an ordinary drop-bottle on to the gauze. The object of the upper tin is to concentrate the vapours, prevent waste, and facilitate the addition of carbon dioxide, carbogen or oxygen, should this become necessary.

Figure III.

The obvious criticism of such a method is that one has no means of "blowing the patient out" (should the necessity arise) as one has with the more bulky apparatus and with a single small catheter in the trachea. The only necessity that, from a practical point of view, ever calls for such an emergency method, is cessation of respiration, and, personally, I doubt whether this "blowing out" efficiently washes out the anæsthetic vapour from the alveoli, unless it is combined with artificial respiration. In using the above method, by disconnecting the apparatus at the angle piece attached to the catheter and doing artificial respiration, one has a very efficient way of washing out the alveoli on account of the large bore airway that is *in situ*.

In conclusion, the great advantage of the Magill method of large bore or double tube intubation with packing, over the older small single catheter method, in oral surgery, lies in the absolute certainty of maintaining a lower respiratory tract free from contamination with blood, pus and foreign bodies.

Those of you who have used endotracheal anæsthesia with the ordinary gum-elastic catheter and a method of forcing air and ether or oxygen and ether down the catheter, must have had the experience after oral operations of finding blood clotted round the lower end of the catheter, and this in spite of the fact that a positive pressure was used in the air forced into the trachea. Such a happening must be adding a possible complication to the patient's condition—a complication that can be absolutely avoided by means of either of the two methods outlined.

THE CHOICE OF ANÆSTHETIC IN ORAL SURGERY.[1]

By Victor A. Read, D.D.S. (North-Western University of America), L.D.S., B.D.Sc. (Melbourne),
Perth.

In presenting to you this paper on the subject entitled "The Choice of Anæsthetic in Oral Surgery", I have purposely touched upon, and have even gone so far as to give my own personal views upon, aspects of the subject that must be admitted to be quite controversial. In this way I hope to arouse an animated discussion later in the evening.

My paper, while dealing with the subject on what I consider to be fairly broad lines, nevertheless quite naturally tends to represent the case somewhat more fully from the attitude of the dental surgeon as distinct from that of the oral surgeon. In the course of consideration of the subject matter proper, it is necessary to enumerate briefly the anæsthetics employed in surgical procedures in the oral cavity, together with their respective methods of administration.

All anæsthetics are classified under the headings of local or general, according to their action or their administration, and the choice between these two groups is the initial decision that must be made in each individual case.

Factors Governing Choice of Anæsthetic.

The factors governing the choice are: firstly, the general condition of health of the patient, certain general anæsthetics being especially contraindicated in certain pathological conditions; secondly, the age of the patient; thirdly, the degree of severity of the operation; fourthly, the temperament of the patient; and fifthly, the state of the tissues at the site of operation.

In consideration of the first factor, that of the physical condition of the patient, it should be borne in mind that general anæsthesia is more easily induced in the frail anæmic types than in the florid muscular type. Plethoric, and particularly alcoholic, persons take all general anæsthetics badly, but are especially bad subjects for nitrous oxide, so frequently used for dental operations, or any method involving any degree of asphyxiation.

Speaking generally, if the patient's health is such that the administration of a general anæsthetic

[1] Read at a meeting of the Western Australian Branch of the British Medical Association and of the Western Australian Branch of the Australian Dental Association on October 19, 1932.

entails some considerable degree of risk, especially in cases of cardiac, pulmonary or severe renal disorders, then resort should be made to a local anæsthetic.

Ether should be particularly avoided in pulmonary, pleural or bronchial affections, and closed methods of administration should be avoided in cardiac affections. It is held by most authorities that chloroform should never be used for dental operations. The operation is not serious enough to justify the risk incurred, but it is useful in small quantities as an adjunct to open ether administration.

In all extensive operations in which ether is employed a preliminary injection of 0·015 gramme (one-sixth of a grain) of morphine and 0·65 milligramme (one-hundredth of a grain) of atropine sulphate about three-quarters of an hour prior to the operation is a distinct advantage.

In regard to the question of age, young children (say, under the age of seven years) are almost invariably best dealt with under general anæsthesia, while, on the other hand, elderly people of suitable temperament are usually better subjects for local anæsthesia because of the arteriosclerosis often present and senile changes in the vital organs.

Regarding the third factor, that of the severity of the operation, where considerable instrumentation is necessary, involving such unpleasant procedures as the chiselling of bone or the forceful elevation of tooth roots, a general anæsthetic is more suitable than a local.

The fourth factor of temperament is an extremely important one to bear in mind at all times. Neurotic or hysterical dispositions are extremely unsuitable for local anæsthetics as, regardless of the perfection of the anæsthesia, such patients fail to give the operator the cooperation he is entitled to expect. It should be mentioned in passing that many of the patients who enter the surgery announcing somewhat volubly their extreme nervousness prove far from such during the operation. The truly nervous type manifests itself in the patients who enter the surgery with great trepidation, accompanied by one or more friends or relatives (presumably for moral support), and who obviously are antagonistic to, and suspicious of, the operator's every movement. Such manifestations should put the dentist or surgeon on his guard immediately against recommending a local anæsthetic.

All that need be said in reference to the fifth factor is that when the tissues are in a state of acute sepsis a general anæsthetic is desirable, although conductive anæsthesia can be utilized if any of the factors mentioned above militate against the use of a general anæsthetic. In the case of fracture of either jaw, where splints are in place, any surgical manipulations must be effected under local anæsthesia.

Local Anæsthetics.

Presuming that after consideration of the above factors the decision is made to work under a local anæsthetic, let us now consider the merits of the respective types of local anæsthesia.

Local anæsthetics comprise those chemically active agents which inhibit the sensory nerve fibres in their course or at their peripheral end organs. When this is done by inhibiting the function of the peripheral nerves in a small area of tissue it is called "terminal or infiltration" anæsthesia and, when by inhibiting the conductivity of the sensory nerve trunk at some point between the brain and the periphery, it is termed "conductive or blockage" anæsthesia.

A local anæsthesia can also be produced for very superficial surgical procedures by the production of a local anæmia best effected by actually freezing the tissue fluids with the application of a fine ethyl chloride spray. This method is effective for the painless removal of very loose teeth or small fragments of necrotic bone in the process of exfoliation.

In brief, then, the three methods of producing local anæsthesia applicable to the oral cavity are: (i) Anæsthesia by freezing, (ii) by infiltration of the actual tissues to be operated upon, (iii) by blockage of the main nerve trunk supplying the area involved.

For completeness, mention should also possibly be made of surface absorption through the mucous membrane of cocaine solutions of about 10% concentration for superficial operations such as antrum perforations for irrigation purposes.

Infiltration Anæsthesia.

Where the peripheral nerve branches are near the surface so as to be easily accessible, infiltration of the affected part is sufficient to produce complete anæsthesia. This applies particularly to surgical procedures in the premaxillary region, in the extraction of all upper teeth as far posteriorly as the second bicuspid, and to superficial operations upon the lips, cheek, palate and floor of the mouth. Infiltration is positively contraindicated, however, in all cases of acute sepsis, this fact often proving a very serious limitation to the usefulness of the method.

Conductive Anæsthesia.

Unlike numerous innovations in dentistry, conductive anæsthesia has successfully steered past the shallows and cliffs of "fadism" and is now an accepted part of dental practice.

Of all methods of producing local anæsthesia, that of blocking the nerve trunk concerned in the sensory supply of the field of operation has the greatest range of usefulness. I even make bold to express the opinion that, in many instances, painless surgical operation in certain regions of the mouth is impossible, or at any rate impracticable, without this method, where a local anæsthetic is to be employed.

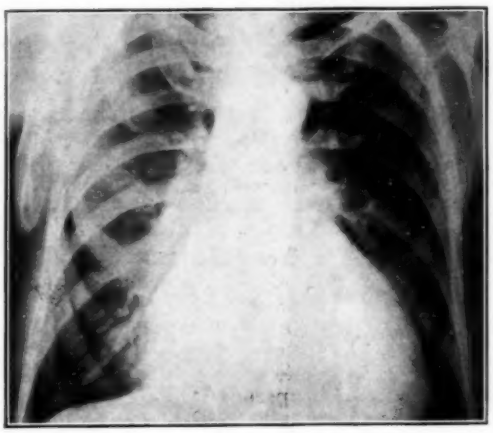
The blockages that can be made in the mouth are quite numerous, and all have their special indications according to the site of the operation. They are:

(1) The anterior and posterior palatine injections, blocking off the naso-palatine and anterior palatine nerves respectively, for operations on the palate.

(2) The zygomatic or tuberosity injection blocking off the posterior superior alveolar nerve, which supplies the upper three molar teeth and their investing tissues, with the exception of the mesial root of the first molar tooth.

(3) The infra-orbital injection blocking off the anterior and middle superior alveolar nerves for work on the anterior portion of the maxilla as far back as the first molar tooth.

ILLUSTRATIONS TO THE ARTICLE BY DR. F. J. GWYNNE.



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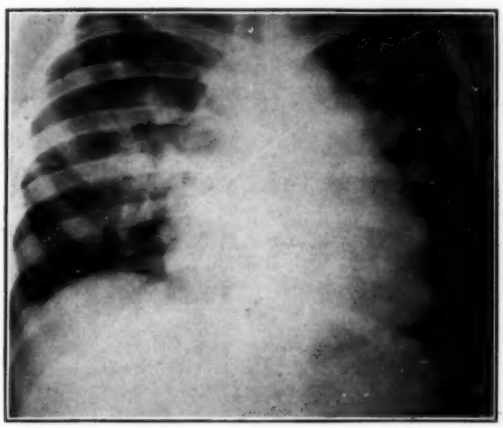

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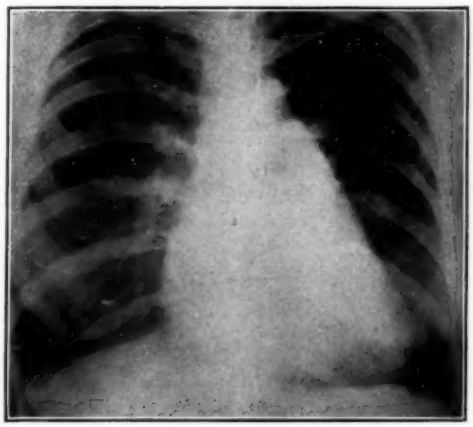

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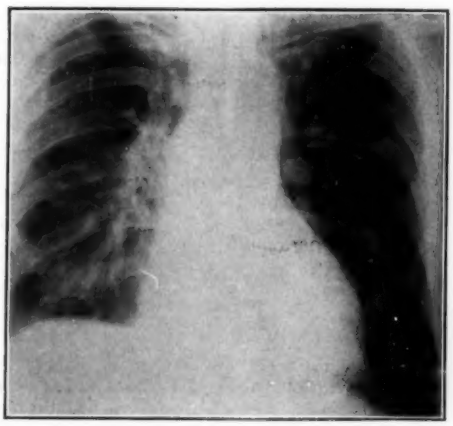

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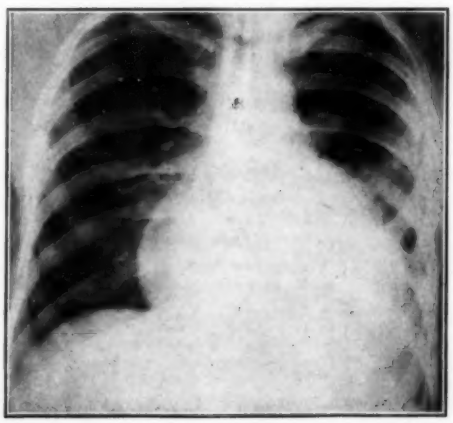

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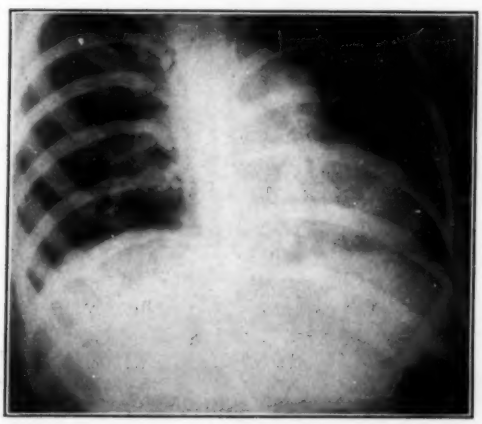
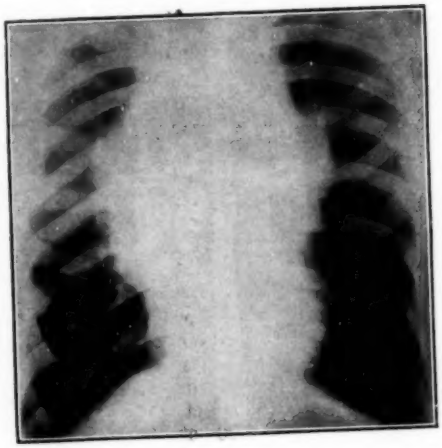


FIGURE XI.

ILLUSTRATIONS TO THE ARTICLE BY Dr. F. J. GWYNNE.

Figure XII.



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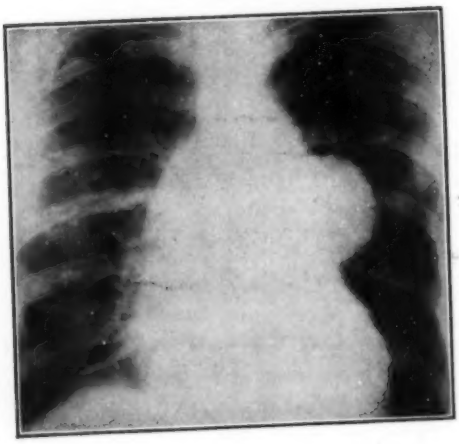

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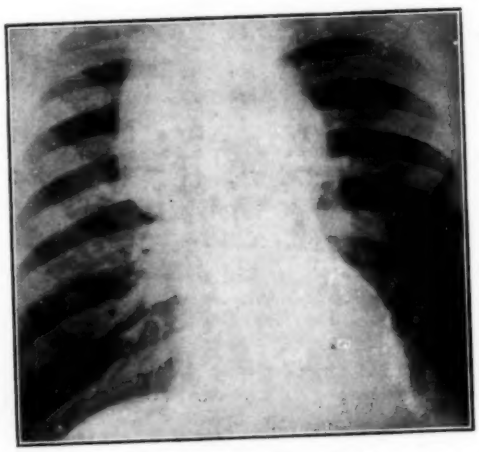

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Figure XVI.

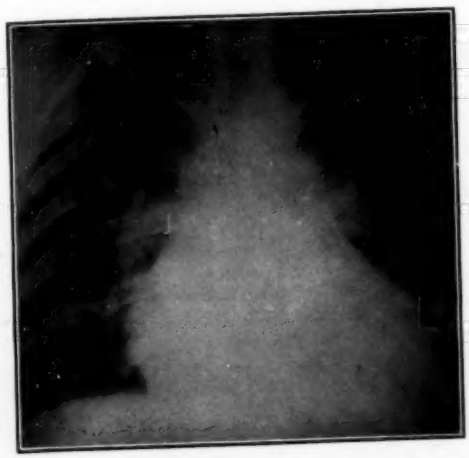

Figure XVII.

(4) The mental injection made through the mental foramen for work on the lower incisor and bicuspid teeth and investing tissues.

(5) The mandibular or inferior alveolar nerve blockage where one entire half of the mandible is to be anæsthetized.

(6) The lingual nerve blockage for operations on the anterior third of the tongue.

(7) The complete blockage of the second division of the trigeminal nerve, which is rarely if ever required by the dental surgeon, but possibly occasionally by the oral surgeon, for radical excisions, and alcohol anæsthesia in cases of *tic douloureux*.

Of all these perineural injections the blockage of the third division of the trigeminal is the most useful to the dentist. In my own practice it is one of the most frequent injections made, whether for the preparation of several cavities in filling procedures or for the extraction of even a single molar or bicuspid tooth. I have found no objections to the blockage of this division on both sides of the face in the one patient, where an entire clearance of the sixteen lower teeth can be made with the same amount of "Novocain" as would be required for two teeth extracted by infiltration. I also claim that the actual injection, properly made, is less objectionable to the patient than numerous infiltrations. Healing of the sockets or of the tissues generally in surgery of the lower jaw is far more rapid and free from soreness than where the vitality of the cells is lowered by infiltrations of the solution. Furthermore, I venture the opinion that in many mandibles where the cortical bone is thick and dense, complete anæsthesia for the purpose of extraction of teeth is an impossibility by infiltration.

Special indications for conductive anæsthesia exist when the field of operation is extensive, involving such procedures as multiple extractions, alveolectomy, surgical removal of impacted teeth, especially lower or upper third molars, operations for dental cysts, and in curettement of osteitic areas. Also in operations involving acutely inflamed areas or even in low grade infections, such as pyorrhœa, with extensive bone involvement and pus pockets.

In answer to those who are prone to criticize blockage anæsthesia because of after-pain, trismus and such sequelæ, I desire to emphasize the absolute necessity of observing the four requirements governing the injection of a local anæsthetic solution, as failure to do so invites such troubles.

These requirements are: (i) The solution must be isotonic with the blood, and must be free from any irritating chemical preservatives; (ii) it must be capable of sterilization by boiling; (iii) it must be injected at approximately body temperature; (iv) the technique of injection must be accurately executed.

As just mentioned, failure to observe any of these requirements will be responsible for complications such as trismus, due to infiltration of muscle tissue, usually the internal pterygoid; after-pain from hyperæmia, due to infected solutions, or tissue trauma, due to osmosis; or to chemical irritants such as phenol in proprietary solutions. Largely because of the fact that cocaine cannot be sterilized by boiling, but also on account of the idiosyncrasy that quite a few people have to this drug, I am averse to its use as a local anæsthetic, especially in deep-seated injections such as those of the conductive type. If "Novocain", an acknowledgedly harmless product even in large doses, is capable of producing a profound anæsthesia without the risk, then I fail to see the reason for resort to cocaine. I will appreciate criticism, whether favourable or unfavourable, from members of the audience here tonight on this point.

General Anæsthetics.

The general anæsthetics used in oral surgery are numerous, but almost each has its special indications.

Ethyl chloride is especially useful for short operations of less than two minutes' duration, such as drainage incisions and packings. It is particularly useful in children as its odour is well tolerated, and the action is rapid. Repeated induction is dangerous, and on account of its paralytic action on the heart muscle in heavy concentrations it is best given by the open method.

For many years "Somnoform" was used almost exclusively in the Melbourne Dental Hospital for adults, being administered by the closed method in a Perrett apparatus. The reflex activity in the second stage of anæsthesia was very marked in most cases, requiring considerable restraint of the patient. Open methods seem preferable in this respect.

Chloroform is much more potent than ethyl chloride in its effect upon the circulatory system, and is seldom indicated in oral surgery if anæsthesia is long, except as a preliminary to ether or in combination with it in varying proportions.

Nitrous oxide, or laughing gas, is used extensively in dental operations. It can be classed as a very safe, but somewhat unsatisfactory, anæsthetic in as much as it is often extremely difficult to induce deep surgical anæsthesia with it in patients of the full-blooded vigorous type. It is most useful in dental operations when due regard is given to the type of person, particularly when the work is executed in the dental surgery. The recovery is rapid and the after effects are often negligible, thus enabling the patient to leave very soon after the operation. Nitrous oxide is best used in conjunction with oxygen, thus obviating cyanosis and prolonging the anæsthesia.

Ether is the most commonly used anæsthetic in all long operations, generally after preliminary induction with ethyl chloride or chloroform. Because of its irritating effects on the mucous membranes, thereby stimulating salivation and mucous secretion, it should be preceded by injection of atropine, while the anæsthetic effect is hastened by morphine 0·015 gramme (one-sixth grain).

I have seen ethylene used in dental surgery in America, but am not conversant with its special indications, if any.

We have discussed the actual anæsthetics, but of equal importance in oral surgery is the method of administration.

To my mind, for long operations in the mouth, especially when active sepsis is present, or when the hæmorrhage is likely to be severe, such as in clearances of large numbers of teeth, indisputably the method

of administration *par excellence* is ether given by the endotracheal method.

I particularly desire to stress this assertion in as much as I consider that it should be the accepted method by the anæsthetist. To me it seems really remarkable how we escape serious pulmonary complications from aspirated septic material following clearances of teeth, but after all, septic pneumonia is not unknown to us, and suspicious coughs are quite common, persisting for several days, and sometimes requiring special attention before they can be made to disappear.

A most important feature of endotracheal administration from the dentist's viewpoint is the freedom from delays from reinductions, the more orderly conduct of his work thus made possible, and the resultant better control of hæmorrhage. The need for undue haste is also eliminated. An improvement upon the ordinary open method in this latter respect, though not obviating the possibility of aspiration of septic clots *et cetera*, is the intranasal method, by means of the soft catheter introduced through the nose into the larynx.

Conclusion.

To sum up the whole paper briefly I would say that so far as science has yet progressed, local anæsthetics in oral surgery reach the pinnacle of perfection in conductive anæsthesia, and general anæsthetics in long operations in the endotracheal administration of ether.

A BACTERIOLOGICAL INVESTIGATION OF A SERIES OF TONSILS REMOVED BY OPERATION.

By W. C. Sawers, D.S.O., M.B., Ch.B., D.P.H., D.T.M.,

and

F. R. Barrett,

From the School of Public Health and Tropical Medicine, University of Sydney.[1]

As a preliminary step in an inquiry by the Director of this school on the value of tonsillectomy, a bacteriological examination of the flora of the surfaces and crypts of diseased tonsils in children in Sydney was carried out by the Bacteriological Department of the School of Public Health and Tropical Medicine during the months May to December, 1931.

As a search of the Australian literature failed to reveal an investigation of this nature, it was thought that it would be of value to record these results. In all 170 pairs of tonsils have been examined. They were obtained by arrangement with the Royal Alexandra Hospital for Children, Sydney, and were removed during routine tonsillectomies. In certain cases the tonsils were unsuitable for crypt examination. The ages of the children whose tonsils were removed ranged from eighteen months to thirteen years.

[1] Endowed by the Commonwealth Department of Health.

Methods of Examination.

The tonsils, immediately after removal, were placed in sterile specimen bottles, and then taken to the laboratory. A direct smear of the surface of each tonsil was made, stained by Gram's method, and examined. A culture from the surface was made on blood agar plates, 5% fresh human citrated blood in veal infusion agar (pH 7·5) being used; and also on an inspissated serum slope. The surface of the tonsil was then thoroughly cauterized; the tonsil was divided and direct smears of crypt material were prepared and stained by Gram's method. Cultures of crypt material were made on blood agar plates, and also on an inspissated serum slope for *Corynebacterium diphtheriæ*. All the above cultures were incubated aerobically at 37° C. The blood agar plates were incubated for at least forty-eight hours, and longer when considered necessary. In cases of doubt the inspissated serum slopes were incubated for forty-eight hours.

When smears from the inspissated serum slopes proved positive for *Corynebacterium diphtheriæ* on microscopic examination, intradermal virulence tests were carried out on guinea-pigs.

In the examination for *Mycobacterium tuberculosis*, direct smears of crypt material were stained by the Ziehl-Neelsen method and examined for acid-fast bacteria. In addition a series of cultural and animal tests was made for *Mycobacterium tuberculosis*.

After a trial of Corper's method[1] for concentrating acid-fast bacilli, a method similar to that outlined in "A System of Bacteriology", Medical Research Council,[2] was adopted.

In examining for hæmolytic streptococci when a widely defined halo of hæmolysis on the blood agar plate was produced, no further tests for hæmolysis were done. In all cases of doubt, the following further test[3] for hæmolysis was performed. Colonies were subcultured into 20% serum broth and incubated for fifteen hours at 37° C. Equal parts of this young culture and 5% suspension of washed sheep's red blood corpuscles were mixed; and hæmolysis was noted after one to two hours' incubation at 37° C.

In an attempt to classify the non-hæmolytic streptococci, Crowe's chocolate medium was used. The medium was prepared strictly in accordance with the method detailed by Crowe.[4] It was found that even on first subculture the colour change and other characteristics of this medium often varied. For these reasons, Crowe's method of classifying the non-hæmolytic streptococci was abandoned.

For the study of the streptococci in the crypts and depths of tonsils, the following method was adopted. Snippings of the seared tonsil were mashed with saline solution, inoculated into serum broth, incubated overnight, and plated on blood agar. Suitable colonies were selected, incubated in 20% serum broth for fifteen hours and tested for hæmolysis.

In the case of staphylococci, when hæmolysis was doubtful, blood broth tests were performed.

The staphylococci were further divided according to their pigment formation.

In this investigation it was not possible to undertake typing of the pneumococci found, and identification was necessarily limited to morphological and cultural characteristics and bile solubility tests.

Findings on Surface of Tonsils.

In Table I the bacteria found in 131 pairs of tonsils are grouped. The order of predominance and percentage incidence are shown.

TABLE I.[1]

Organism.	Number of Times Predominating in Culture.		Number of Times Encountered.	
	Times.	%	Times.	%
Non-hæmolytic streptococci	76	58·0	117	89·0
Gram-negative cocci	16	12·0	126	96·0
Hæmolytic streptococci (β type)	17	13·0	64	49·0
Pneumococci	3	2·3	43	33·0
Hæmophilus influenzæ group	1	—	23	17·5
Hæmolytic *Staphylococcus aureus*	5	4·0	20	15·0
Diphtheroids	—	—	15	11·0
Gram-positive bacilli (unidentified)	1	0·8	15	11·0
Gram-negative bacilli (unidentified)	—	—	13	10·0
Bacillus Friedländeri group	1	0·8	11	8·4
Micrococci	1	0·8	11	8·4
Corynebacterium diphtheriæ	1	0·8	10	8·0
Non-hæmolytic *Staphylococcus albus*	—	—	10	8·0
Non-hæmolytic *Staphylococcus aureus*	1	0·8	5	4·0
Hæmolytic *Staphylococcus albus*	2	1·5	4	3·0
Staphylococcus citreus	1	0·8	2	1·5
Vincent's angina organisms (*Bacillus fusiformis* and *Treponema vincenti*)	—	—	1	0·8

[1] With the exception of the Vincent's angina organisms, this table represents the findings in cultures.

Normal Surface Flora.

A comparison of these findings with the results of investigations in other parts of the world brings under notice points of interest.

A search of the literature was made for details of the normal throat flora in Australia. No full investigation was found in Australian literature. In the United States, Shibley *et alii*[5] found that the normal basic throat flora included Gram-negative cocci, non-hæmolytic streptococci, and for certain individuals "large Gram-positive cocci", *Hæmophilus influenzæ*, Bacillus "X" and diphtheroids. Transient organisms are *Staphylococcus albus*, hæmolytic streptococci, *Staphylococcus aureus* and *citreus* and pneumococci.

TABLE II.
Showing Findings in the Crypts of 244 Tonsils.

Organism.	Number of Times in Pure Culture and Percentage.		Number of Times Predominating in Culture and Percentage.		Number of Times Encountered and Percentage.	
	Times.	%	Times.	%	Times.	%
Hæmolytic streptococci (β type)	32	13·0	60	25·0	149	61·0
Non-hæmolytic streptococci	6	2·5	20	8·3	114	47·0
Gram-negative cocci	—	—	10	4·1	59	24·0
Hæmolytic *Staphylococcus aureus*	9	3·7	23	9·4	54	22·0
Hæmophilus influenzæ group	—	—	20	8·3	32	13·0
Pneumococci	1	0·4	7	3·0	14	6·0
Gram-negative bacilli (unidentified)	—	—	—	—	11	4·5
Corynebacterium diphtheriæ	1	0·4	1	0·4	10	4·1
Hæmolytic *Staphylococcus albus*	—	—	1	0·4	7	2·9
Non-hæmolytic *Staphylococcus aureus*	—	—	4	1·6	6	2·5
Diphtheroids	1	0·4	1	0·4	6	2·5
Bacillus Friedländeri group	—	—	—	—	5	2·0
Spirochætes and fusiform bacilli (microscopic examination only)	—	—	1	0·4	4	1·6
Micrococci	—	—	2	0·8	4	1·6
Non-hæmolytic *Staphylococcus albus*	—	—	2	0·8	3	1·2
Gram-positive bacilli (unidentified)	—	—	—	—	3	1·2
Staphylococcus citreus	1	0·4	—	—	1	0·4
Acid-fast bacilli	—	—	—	—	—	—

P. Morales-Otero, in summarizing the findings of the flora of normal throats in San Juan, Porto Rico, June, 1929-30,[6] concludes:

> The basic organisms were the *viridans* group of streptococci and the gram-negative cocci. Hemolytic staphylococci were much more common than the hemolytic streptococci which were found only in rare instances.

Milam and Smillie,[7] in "A Bacteriological Study of 'Colds' on an Isolated Tropical Island" (St. John, United States Virgin Islands, West Indies), state:

> Hemolytic streptococci were rarely found in the Virgin Island study. Only 3 per cent. of the people harbored true *St. pyogenes*, and when found, the organisms were few in number. This was in accordance with the findings in Alabama and Labrador, and apparently is a characteristic of isolated populations. It is interesting to note in this connection that in St. John scarlet fever is unknown, tonsillitis is very infrequent, and other infections associated with hemolytic streptococci, such as erysipelas, puerperal sepsis, etc., are infrequent.

Topley and Wilson[8] quote the following figures obtained during an investigation carried out in Manchester, 1925-1927, showing the relative frequency of certain bacterial species in normal throats (surface swabbings of tonsils).

Number of Swabs.	Pneumococci.	*Hæmophilus influenzæ.*	*Streptococcus hæmolyticus.*	Gram-negative Cocci.
137	44·53%	54·89%	5·11%	98·54%

Discussion of Findings.

The Hæmolytic Streptococci.

In 49% of tonsils hæmolytic streptococci were encountered on the surface. Normal findings for Australia are not available for comparison, but the incidence of the hæmolytic streptococcus appears to vary in different parts of the world, for example, in Manchester, 5·11%;[8] in Porto Rico[6] infrequently; in Boston, United States of America, Smillie[9] found β hæmolytic streptococci in 50% of normal throats.

Hæmolytic streptococci of the β type were found to predominate in the tonsillar crypts, 61% being encountered.

In temperate climates, hæmolytic streptococci appear to be the predominating organism in the tonsillar crypts. Pilot and Pearlman[10] at Chicago found this organism in 95% of excised tonsils; at Baltimore, Polvogt and Crowe[11] obtained 91%; and Davis[12] at Chicago, in a series of 61 cases of hypertrophied tonsils, found the hæmolytic streptococcus predominating in 50 (82%).

Compared with the above, the figure of 26%[13] found in the tonsillar crypts at Porto Rico is interesting.

In our series, including both the surface and crypts of each pair of tonsils, hæmolytic streptococci were found 93 times in 132 pairs (70%).

"Coburn, in his monograph[14] attempts to correlate the incidence of hæmolytic streptococci and active rheumatic phenomena and produces evidence to suggest that a rise in the prevalence of *Streptococcus hæmolyticus* is associated with an increase in active rheumatic symptoms. In a group of patients who were transported to Porto Rico, the hæmolytic streptococcus was present in the pharynx and the rheumatic process was active. Following the change to Porto Rico, where the throat flora changes little from season to season and the hæmolytic streptococcus is rarely found, this organism disappeared from the throat cultures and the disease manifestations subsided. When the patients were brought back to New York, the hæmolytic streptococcus reappeared in the pharynx in many instances. Following this change in the throat flora the rheumatic state again evidenced its activity. *The British Medical Journal*[15] also refers to:

A somewhat similar series of observations demonstrating parallelism between the incidence of *Streptococcus hæmolyticus* in the throat flora, and that of active rheumatic phenomena in children under treatment in a country convalescent home. Outbreaks of tonsillitis of the same kind have been noted by Schlesinger at a similar home in Kent. Dr. Coburn alludes to this observation, and also to that of Hector at a British fever hospital, which showed that "almost without exception an attack of scarlet fever in a rheumatic subject is followed by a reappearance of some of the symptoms associated with rheumatic infection".

In our series, the monthly incidence of the hæmolytic streptococcus, from May to September, was as shown in Table III.

Table III.

Month.	Number of Tonsils Examined.	Crypts.		Surface.	
		Times.	%	Times.	%
May	26	17	65	10	39
June	34	22	65	13	38
July	29	15	52	13	45
August	20	12	60	8	40
September	23	19	83	16	69

The rise shown in September, whilst of interest, cannot be considered mathematically significant, mainly because the series only extends over five months.

Corynebacterium Diphtheriæ.

Bacilli, morphologically resembling *Corynebacterium diphtheriæ*, were found on the surface in ten instances (8%) and, in one case, was the predominating organism on culture. Virulence tests on "field cultures" gave two positive results. However, in three cases where the surface cultures showed a few *Corynebacteria diphtheriæ* and negative virulence tests, *Corynebacterium diphtheriæ* was isolated from the crypts in pure culture (one case), predominating (one case) and in fair numbers (one case), and in each case the result of the virulence test was positive. Field cultures only were used in virulence testing. Okell and Parrish[16] found that impure primary ("field") cultures gave reliable results (94%) when more than one-third of the organisms seen in the smear made from the overnight culture were morphologically *Corynebacteria diphtheriæ*, and that if fewer *Corynebacteria diphtheriæ* were present in the smear, the primary culture gave uncertain results. So that the incidence of carriers of virulent *Corynebacterium diphtheriæ* is probably higher than indicated by the virulence tests. In only one case was morphological *Corynebacterium diphtheriæ* found in fair numbers where the virulence test was negative.

In the crypts ten tonsils showed the presence of bacilli, morphologically resembling *Corynebacterium diphtheriæ*, and of these three gave a positive result to the virulence test.

It would appear possible for the crypts to harbour virulent *Corynebacteria diphtheriæ* and for these organisms to find their way periodically to the surface and thus constitute a carrier in which the bacilli are only found intermittently.

In regard to diphtheria and tonsillectomy, G. Bismut[17] "records eight cases in children, aged from 2 to 9 years, showing that diphtheria may take place a few days after removal of tonsils and adenoids when no preventive inoculation has been carried out. This occurrence is by no means rare, and the attack may be severe, partly owing to the difficulty of diagnosis, but mainly because of the rapid and early absorption of toxins by the operation wound." He recommends Schick testing and immunization when necessary.

Hæmolytic Staphylococci.

In our series, the incidence of hæmolytic staphylococci was as shown in Table IV.

Table IV.

Observation.	Surface. (131 pairs of Tonsils.)		Crypts. (244 Tonsils.)	
	Hæmolytic *Staphylococcus aureus.*	Hæmolytic *Staphylococcus albus.*	Hæmolytic *Staphylococcus aureus.*	Hæmolytic *Staphylococcus albus.*
Number of times encountered in pure culture	—	—	9 (3·7%)	—
Number of times predominating in culture	5 (4·0%)	2 (1·5%)	23 (9·4%)	1 (0·4%)
Number of times encountered	20 (15·0%)	4 (3·0%)	54 (22·0%)	7 (2·9%)

The pathogenic importance of *Staphylococcus aureus* is emphasized by the findings of R. Y. Mathew[18] of the *Staphylococcus aureus* as the probable cause of a severe disease simulating laryngeal diphtheria at Toowoomba; and of F. Beare[19] in a somewhat similar series in Adelaide.

It is interesting to note that in Porto Rico, where the hæmolytic streptococcus is infrequently encountered, the hæmolytic *Staphylococcus aureus* is the outstanding pathogenic organism present in diseased tonsils.

Influenza Bacilli.

Hæmophilus influenzæ was present in 17·5% of tonsils at least. Special cultural methods would undoubtedly demonstrate a much higher incidence.

Mycobacterium Tuberculosis.

First series: Microscopic examination was made of direct smears of material obtained from the crypts of 244 tonsils.

These tonsils represent 131 cases of tonsillectomy; but 18 tonsils were unsuitable for examination.

In the histories of the above cases, there was no record of any tuberculous infection. The smears were stained by Ziehl-Neelsen's method. No acid-fast bacilli were found in this series.

In an investigation involving animal inoculations 100 tonsils, representing fifty cases of tonsillectomy, were examined, as follows:

(a) *Controls.* Tonsils *plus* virulent tubercle bacilli.	
Number of controls, using human tubercle bacilli....	2
Number of controls, using bovine tubercle bacilli....	2
(b) *Tonsils only.*	
Number of guinea-pigs dying of septic infections....	14
Number of guinea-pigs killed six weeks after inoculation and examined for *Mycobacterium tuberculosis*	36
Total number of guinea-pigs inoculated.....	54

All the controls (*a*) were positive.

No tuberculous infection was observed in (*b*).

Conclusions.

In this preliminary bacteriological survey there appear to be certain aspects worthy of emphasis.

1. The predominating organism cultured from the tonsillar crypts was the *Streptococcus hæmolyticus*, and this corresponded with the findings at Chicago and Baltimore, but was in marked contrast with findings in tropical communities as Porto Rico and Virgin Islands.

2. The apparent rise of hæmolytic streptococci in September, 1931, is of interest.

3. The bacterial flora on the tonsillar surface does not appear to give a true indication of the flora in the crypts.

Acknowledgements.

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THE DIAGNOSIS OF DISEASES OF THE HEART AND AORTA: A RADIOLOGICAL STUDY.

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SIR JAMES MACKENZIE wrote:

The inspection and the palpation of the movements of the heart and the percussion of the heart's dullness give a far more valuable indication of the size of the different chambers of the heart than an X ray examination. Indeed I am doubtful if any X ray examination has ever thrown the slightest light upon any cardiac condition.

And so general interest in cardio-vascular radiology waned.

Some clinicians adhere to the opinion of Sir James. I am incompetent and unwilling to shake this allegiance to a great master. However, instead of the sun having set on X ray cardiology it is just likely that we are only in the half light that precedes the dawn.

Recently an increasing demand for radiological examination of the heart and great vessels is noticeable. My endeavour is to discuss some aspects of these investigations and to plead for recognition of the radiologist as a medical consultant in such circumstances.

Consideration of the principles involved will define the possibilities of and set the limits to the use of the method which is to be regarded solely as one line of inquiry, incomplete in itself. The results obtained are applied to confirm, amplify or modify the other physical and electrographic findings with which they must harmonize before being accepted.

The X ray examination may be expected to supply some or all of the following information, namely, (A) Heart: (i) Position and contour and alteration with respiration and changes in posture of the patient. (ii) The diameters and areas of its chambers. (iii) The rate and quality of its pulsations. (iv) Whether it contains abnormal densities (calcified areas, foreign bodies). (B) Aorta: (i) Position. (ii) Variations in area, length and calibre with age and disease. (iii) Presence of calcareous degeneration.

TECHNIQUE.

The casual examinations of the past have had much to do in having the method belittled. No

diagnostic procedure can be standardized to offset the need for care and experience. The heart and aorta are admirably placed for X ray studies of their contour, size and function. The radiological data are collected from fluoroscopic observations, orthodiagraphic tracings and teleorœntgenographs.

The anatomical basis of the cardiac and supracardiac shadows and the normal variations with age and habitus must be known before pathological alterations can be recognized. Their radio-visibility depends on: (i) the juxtaposition of the relatively opaque heart and great vessels with the transparent lung fields and tracheo-bronchial tree, (ii) the extent of this relationship, and (iii) the angle of incidence of the radiation with this relationship. The spine, hilar structures and liver tend to obscure some of their outlines.

As the patient is rotated through 360° the constitution of the radiological silhouette is continually changing. A fluoroscopic examination is made during a full rotation of the patient. The angles giving optimum visibility of the different parts are selected for making orthodiagrams and taking films. On account of the variation in position and direction of the axis of the heart and vessels it is not desirable to use arbitrarily fixed angles in the oblique projections.

In anterior projection (Figure I) the right margin of the cardiac shadow is due to the right auricle and the left to the left ventricle. The left auricular

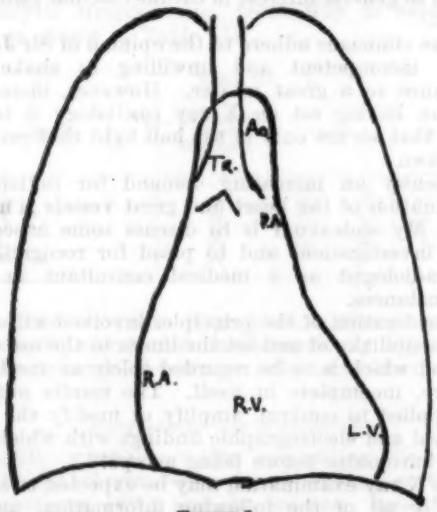

FIGURE I.

appendix may be present where this outline merges with the supracardiac shadow. The inferior surface is lost in the subphrenic dulness. It is formed mostly by the right ventricle, with the aid of the right auricle and left ventricle. In rotation through the right anterior oblique position (Figure II) the left ventricle is replaced by the right ventricle and pulmonary cone as the structures forming the heart's left border. In wide angles the left auricle helps the right auricle in making the right border in its upper part and the inferior *vena cava* in its lower extremity.

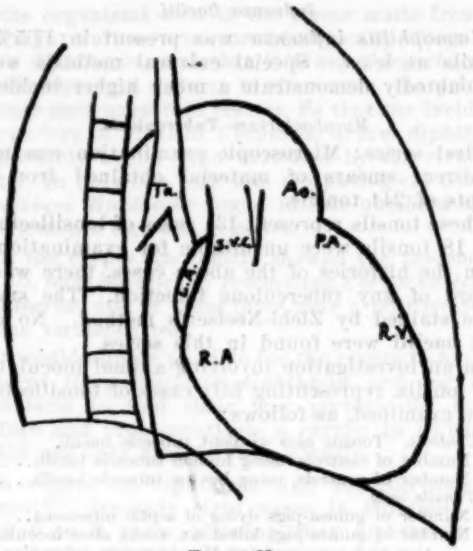

FIGURE II.

Movement through the left anterior oblique position (Figure III) brings the right ventricle and pulmonary cone to form the right and the left ventricle and left auricle the left border of the shadow. The retrosternal and retrocardiac spaces are best observed in true lateral projections. In disease they may be widened, reduced, partly or wholly obliterated.

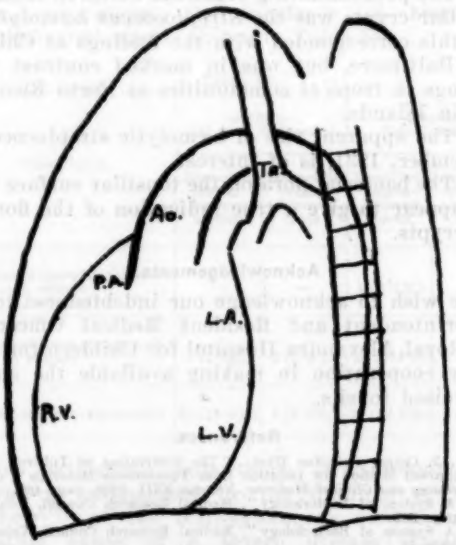

FIGURE III.

The supracardiac shadow (Figure IV) is composed of the superior *vena cava*, the arch of the aorta, pulmonary arteries, the trachea and its bifurcation and the œsophagus. In the anterior projection (Figure I) its right border is usually due to the right border of the superior *vena cava*. In patients of sthenic habitus with a high level of the diaphragm

the ascending aorta may contribute to its formation. When the trachea and right bronchus overlie it, its definition is lost. The upper convexity is due to the superior limit of the transverse part of the aortic arch. The left side of the shadow presents two slightly convex curvatures, the upper representing the transverse and descending parts of the aortic arch superimposed, the lower the pulmonary cone and artery. The radiolucent trachea and main bronchi are as a rule clearly differentiated in their course through the superior mediastinum. The œsophagus is only visualized during the passage of contrast media.

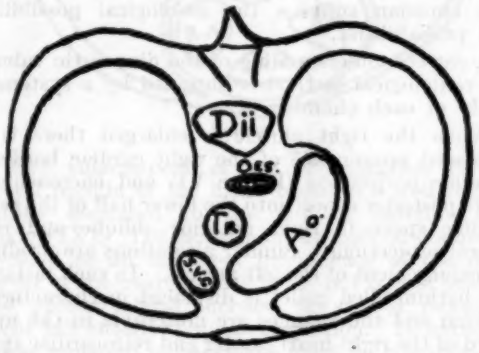

FIGURE IV.

As the patient is rotated through the right anterior oblique position (Figure II) the shadows present a gradual change. The left border of the pulmonary artery and then its left antero-lateral border come into view and remain throughout rotation as the left limit of the shadow. Nearing 90° its upper part disappears and is replaced by the ascending aorta. The aortic arch is visible at first by its left surface and a portion of its convexity is displayed in part of its extent as rotation proceeds. The left antero-lateral limit and the superior convexity of the anterior knee of the arch are clearly discerned depending on the extent of their contact with the radiolucent left lung. On the right border of the shadow the right and right posterior margins of the superior *vena cava*, distinct in the beginning, slowly disappear with increasing prominence of its right brachio-cephalic branch. The right posterior limit of the œsophagus and closely related trachea are distinguishable and become more distinct as rotation increases. The left and left anterior margins of the descending aorta also undergo alteration. It is readily seen in the early stages and slowly disappears from below upwards.

During this rotation the aortic arch is projected axially between 0° and 20° depending on age and habitus. The correct angle is obtained when the left antero-lateral margin of the descending aorta merges with that of the arch. The tracheal radiolucency then fills the space between the vessels and the spine. The aortic diameter is measured from its left lateral or left antero-lateral border to the corresponding border of the trachea at a level immediately above the tracheal bifurcation. With allowance for radiographic distortion and the thickness of the aortic and tracheal walls the measurement is accurate for practical purposes. In pathological conditions a measurement of the posterior part of the aortic arch may be made between its superior and inferior borders when the patient is rotated to about 45° in the right anterior oblique position. These parts are often more distinct in the left posterior oblique position. Between 20 and 70 years the calibre of the aortic arch varies from 20 to 27 millimetres, females having measurements a little less than males. An aorta with a diameter of 30 millimetres is considered to be dilated.

With rotation through the left anterior oblique position (Figure III) the right and then the right anterior margin of the superior *vena cava* which is visible up to 30° is gradually obscured from below upwards by the ascending aorta, the right anterior border of which is more clearly seen in wide angles. The anterior knee of the arch and the superior convexity and inferior concavity of the arch are usually indistinct. The latter is obscured by the left hilar shadow. The superior limits of the tracheal bifurcation are often mistaken for it. With increasing age and in pathological states their visibility improves. The posterior third of the arch and the left posterior margin of the posterior knee are seen as a rule. The left posterior margin of the descending aorta, readily seen with commencing rotation, disappears by degrees from below upwards. The right anterior margin of the descending aorta may not be visible. Its area of contact with the lung increases with the angle of rotation, being at a maximum as the apex of the heart leaves the shadow of the spine. The other borders of the descending aorta are also studied from all angles during the rotation of the patient. The calibre of its upper third may be estimated in the left anterior oblique positions. The gullet may be filled with contrast media and used as an indirect guide to obtain evidence concerning the thoracic aorta.

Present day technique does not permit of direct measurement of the pulmonary artery or superior *vena cava*.

The retro-tracheo-œsophageal space is best examined in the wider angles.

During fluoroscopy the strength, amplitude and time relations of the auricular, ventricular and aortic pulsations are observed. In normal hearts the pulsations have an excursion of two to seven millimetres; in disease this may reach 20 millimetres. The pulsations tend to be vigorous in hypertrophied hearts (aortic valve disease, chronic nephritis), fluttering and increased in cardiac neuroses, thyreotoxicosis, tachycardia and after strenuous exercise, and weakened in the enlarged hearts affected by chronic myocardial disease. Pericardial effusion diminishes and may abolish the pulsations. Auricular pulsation is absent, with auricular fibrillation and marked auricular dilatation. It is difficult to distinguish the auricular and ventricular pulsations when they are diffused by tachycardia or adherent pericarditis.

The presence or absence of movement of the heart and aorta with respiration and changes of posture are also noted during the radioscopy. There is a change in the shape and position of the heart in health

between inspiration and expiration and between the erect and recumbent positions. This is due to the fact that it is suspended by the great vessels and rests on the diaphragm. The range of movement depends largely on the habitus of the patient.

During radioscopy the technique of Vaquez and Bordet may be followed in estimating whether there is an increase in the sagittal diameter of the heart when its transverse diameter appears to be within normal limits. The procedure is described in text books.

The electrical axis of the heart may be determined from its anatomical axis as revealed by X ray examination. The information may be applied to the interpretation of certain electrographic findings.

The method of making orthodiagrams and teleoroentgenographs is well known and the details for measuring the diameters and area of the heart and aorta (according to Groedal, Vaquez, Fray and others) may be studied in the literature to which reference is made. Orthodiagraphy rests on the personal factor and, so, is liable to error. It is economical, if time consuming, and most valuable in outlining the apex. Teleoroentgenographs form a permanent record. The apex and junction of the left auricle and ventricle are not always clearly defined. The three methods are complementary, and the advantages of each are used in collecting the radiological data.

Deformities of the chest, abnormal positions of the diaphragm, and displacement of the heart by lung disease are conditions which greatly diminish the clinical value of the radiological findings.

Many attempts have been made: (1) To relate the area of the heart and the heart and supracardiac shadow with the total surface of the body. In a normal adult the former relationship approximates 0·7 *per centum*. The objections to its use include the difficulty in being certain of the upper and lower borders of the area to be measured and the principle of relating a measurement in two dimensions with one in three dimensions. (2) To connect the transverse diameter of the heart and aorta in anterior and oblique projections with the transverse diameter of the thorax. A ratio of more than 50 *per centum* is considered an accurate indication of cardiac enlargement without reference to the chambers producing the enlargement. By using the oblique cardio-thoracic index (Fray) a more accurate idea concerning the part played by the right or left side of the heart in producing the enlargement may be obtained. This applies especially when the right ventricle is enlarged in acute fevers and chronic lung disease. (3) To construct tables predicting the area and diameters of the heart and aorta of patients based on their habitus, age, weight and height. Mathematical precision is not obtainable with so many variables. The results are relative and conditional and require careful correlation with the other data before clinical application.

The Principles of Radiological Diagnosis in Heart and Aorta Disease.

The common practice of making a few measurements on anterior projections by one of the methods indicated and offering them as a contribution to the study of a particular disease is to be discouraged. Efforts to identify the diagnosis of each heart lesion with a certain configuration of its shadow, for example, duck-shaped, sabot, mitral type *et cetera*, are unscientific and not to be emulated. Allowing for the wide range of variation in the normal heart shadow there are few diseased hearts with active symptoms that retain their normal size and shape.

The type of alteration depends on the chamber or chambers enlarged. Similar changes may be produced by dissimilar pathological conditions and inferences as to the structural changes responsible for the X ray findings are the main concern of the radiologist. The clinician supplies the ætiological possibilities and probabilities.

A correct understanding of the diagnostic value of the radiological method is obtained by a systematic study of each chamber.

When the right auricle is enlarged there is an increased prominence of the right cardiac border in anterior projections (Figure VI) and encroachment of its posterior aspect into the lower half of the retrocardiac space in right anterior oblique and right lateral projections. Similar alterations are produced by enlargement of the left auricle. In such instances the barium-filled gullet is displaced in characteristic fashion and the changes are noticeable in the upper third of the right heart border and retrocardiac space.

The position of the right ventricle makes special care necessary in its examination. The onset of enlargement renders unduly prominent that part of the left border of the heart formed by the pulmonary cone and artery and produces displacement to the right of the right auricular outline (Figures VII and VIII). As enlargement proceeds there is accentuation of the ventral border of the right ventricle and pulmonary cone as visualized in the right and left anterior oblique positions with an increase in the sagittal diameter of the heart. A relatively sharp angulation appears about the middle of this border in these views in the early stages of enlargement. Later the border is markedly bulged and may reach the anterior thoracic wall. Finally, rotation of the heart from right to left and from below upwards occurs and tends to take the aorta and left ventricle from the formation of the left border of the heart as seen in anterior projections. This exaggerates the pulmonary cone, and the usual curvature due to the left ventricle becomes straightened with a sharp drop towards the diaphragm. Deep inspiration makes these appearances more defined. An accentuated pulmonary cone may be present in children and vertical types of heart without significance.

Enlargement of the posteriorly placed left auricle (Figure V) produces bulging into the retrocardiac space, displacing the œsophagus backwards and to the right (or left, occasionally). The left bronchus is displaced upwards with widening of the tracheal bifurcation angle. With greater degrees of enlargement the left auricle projects to the right and comes to form part of the right heart border, when two curves are discernible in its formation, the upper being due to the left auricle (Figures VIII and XVII). Associated increase in the size of the pulmonary cone usually masks its enlargement to the left. The left

auricle can often be recognized as a rounded increased density through the upper central part of the heart in these circumstances.

Figure V.

With enlargement of the left ventricle the left lateral margin of the heart becomes a well rounded outline displaced to the left in anterior views (Figure IX). The increase in the sagittal diameter is revealed as an increased prominence of the dorsal border of the heart as seen in the left lateral position. The postero-lateral increase in size is recognized in the left anterior oblique projection. In horizontal hearts apparent enlargement must be maintained in deep inspiration to be of clinical value. In vertical types minor accentuation of the left ventricle may mean an appreciable increase in its size.

A triangular shadow at the apex of the heart less dense than the general heart density is due to pericardial fat and is not to be confused with heart enlargement or pleuro-pericardial adhesions.

A diagnosis of generalized enlargement of the heart is made when an increase in the size of all its chambers is demonstrated by these means (Figures VI and XVII). With pericardial effusion (Figure X) there is an increase in the area of the cardiac shadow with obliteration of the usual curvatures, reduction or absence of the heart's pulsations and disproportionate widening of the upper part of the shadow more noticeable in the recumbent posture.

The radiological differentiation of hypertrophy from dilatation as the cause of heart enlargement is often difficult. In the former the shadow is generally elliptical with vigorous, deliberate pulsation, while in the latter the configuration is ovoid with weak, uncertain action (Figures VI and XVII).

Complications such as pulmonary engorgement, bronchial occlusion and pleural transudates are revealed during the investigation as well as unsuspected pleural, pulmonary or mediastinal pathological change.

Certain Aspects of the Application of the Method to the Diagnosis of Disease of the Heart and Aorta.

Cardiac Pathological Conditions.

Congenital Conditions.

Acquired disease is excluded by consideration of the clinical history. The rare condition of dextrocardia is readily distinguished from generalized transposition of the viscera. With congenital disease due to intrinsic defects there is no characteristic silhouette on account of the variety and combination of the defects. The X ray picture is based on the circulatory mechanism involved. Complications and unusual combinations of the developmental errors may render the exact interpretation of the radiological findings extremely difficult or impossible.

The rare and fatal congenital idiopathic enlargement of the heart producing dyspnœa and cyanosis may be referred for X ray examination with a provisional diagnosis of enlarged thymus. The findings establish gross increase in the size of the heart, especially involving its left side. The supracardiac shadow is normal. Bronchial pressure may be present with massive lung collapse.

The majority of the more common lesions (patent *ductus arteriosus*, pulmonary stenosis, aortic stenosis, defective interventricular septum) produce an enlargement of the heart of a type depending on the lesion with enlargement of the pulmonary cone when there is congestion of the pulmonary circulation. The diagnosis is more easily made in older children with compensated lesions. Septal defects may not alter the size or shape of the heart (Figures VII and XI).

Acquired Disease.

Pericardium.—The signs of the presence of fluid in the pericardium have been mentioned. Two hundred cubic centimetres may be present and unrevealed by the examination. Calcareous degeneration of the pericardium occurs in localized areas or over most of its extent. It presents itself as very dense abnormal opacities of irregular shape and size placed anywhere along the borders of the heart. The posterior plaques are best seen in the oblique and lateral positions.

Localized pericardial adhesions may not be discovered. More extensive adhesions involving the pleura deform the heart's outline, inhibit its activity and restrict its excursion during respiration and changes of posture.

Myocardium.—On account of the normal variations in adults and children it is not possible in the present state of knowledge to use the radiological findings concerning the amplitude and character of the heart's action as a measure of cardiac function. Generally speaking the data are also not helpful in distinguishing functional from organic disease, notwithstanding that cardio-pulmonary functional murmurs appear to depend on the size of the heart and its type of pulsation.

It has been noticed that hard labour decreases the size of normal and slightly enlarged, but well compensated hearts, and enlarges pathological hearts. It is suggested that such behaviour of cardiac muscle may be used as a test of functional adaptability. It is likely that in the future more precise radiodiagnostic standards will be formulated and given a sphere of clinical applicability in this regard.

In patients with auricular fibrillation there is irregularity of the heart's action without transmission of its pulsations to the barium-containing œsophagus. The inert auricle is ballooned by the regurgitant flow from the ventricle. This may give it an impulse synchronous with that of the aorta, and a double pulsation of the right heart border is sometimes

noticeable when the left auricle extends to its formation. Bradycardia results from: (i) partial or complete heart block, or (ii) nodal rhythm. In the former the excursions of the left heart border are noticeably increased and in the latter those of the right border. In established instances the heart is enlarged and this is more marked when heart block is the causative lesion.

In patients with auricular flutter the disparity between the ventricular and auricular pulsations is noticed and their respective rates are estimated. Other findings help those of the electrocardiograph in deciding whether the condition is present in an apparently normal heart, has supervened on chronic heart disease or has followed heart block.

Confirmatory and additional information is obtained by radioscopic examination of patients suffering from the various disorders of cardiac rhythm. The irritable heart of soldiers exhibits an increased rate and has measurements as a rule below normal for the habitus.

The myocardial embarrassment accompanying certain acute illnesses manifests itself by an increase in the size of the heart shadow. Serial radiography provides a valuable check on the cardiac impairment and recovery in these conditions.

The radiological diagnosis of chronic myocardial disease does not reach a high percentage of accuracy at present. Enlargement is the only reliable sign, and this is found to be a very variable factor when a series of patients with moderate and advanced disease is studied. This is due to several causes: (i) Early disease is not discovered. (ii) Myocardial degeneration may be an atrophic process. (iii) Uncomplicated arterial hypertension may be present for a long period without heart enlargement. (iv) Coronary disease with serious and even fatal pathological changes of the myocardium may exist and give no radiological clue to its presence.

The evidence concerning the effect of thyreotoxicosis in producing changes in the shape and size of the heart shadow is indefinite. No constant relation has been established between the duration of the disease, the loss of weight, and the size of the heart. When enlargement occurs, it is permanent and affects both sides of the heart with increased prominence of the pulmonary curve and a steep left ventricular margin. The pulsation and rhythm vary from those of the heart affected with disease of the mitral valves which its configuration resembles. There is an average increase of twenty-five *per centum* in the size of hearts diagnosed radiologically as suffering from chronic myocardial disease.

At odd times the examination is helpful in the demonstration of such rare conditions as aneurysm of the heart, foreign body in the heart wall, hydatid cyst of the heart and calcareous degeneration of the heart muscle. The method adds nothing to the determination of diseases of the coronary vessels.

Endocardium.—Acute valvular lesions give no detectable signs of their presence. Compensated, healed disease of small extent may not produce any radiological changes. In chronic valvular diseases the radiologist by direct and indirect means already described nominates the chamber or chambers involved in the alteration of the heart's shape and size. The anatomical diagnosis is supplied after consideration of the findings with the pathological and mechanical principles involved. Descriptions of the changes with each type of lesion are readily available in the literature. Use of the pathological data enables one to predict the radiological picture in uncomplicated instances. The radiographs of combined mitral and associated mitral and aortic disease vary according to the predominance of the lesions and may be very complex (Figure XVII).

The radiological suggestion of the presence of aortitis may be helpful in the differential diagnosis of syphilitic from rheumatic disease of the aortic valves.

With detectable increase in heart size in mitral stenosis the average increase is about 10%, in combined mitral lesions 30%, in aortic disease a somewhat higher percentage, and with multiple valve involvement as high as 70%.

Pathological Changes in the Aorta.

The normal aorta is not sharply demarcated from the pathological. Wide differences in normal are present, with variations in age and habitus. Its clear definition in certain patients is not a sign *per se* of pathological change. An undue projection to the left of the arch in a vertical thorax with a long aorta is not necessarily indicative of dilatation when the finding is present only in anterior views. In aged people the left border of the descending aorta may run out into the lung tissue and be visible through the left ventricle without being of diagnostic importance.

Elongation of the arch produces projection of the supracardiac shadow to the right and left and elevation of its superior limit. With dilatation an inequality of the right and left borders in anterior views becomes noticeable, the bulging being more prominent in the lower half of the right border and the upper part of the left (Figure XII). This finding is helpful in the differentiation of aortic dilatation from mediastinal tumours (Figures XIII and XIV) (aortic-asymmetry rule of Kienbock). Thickening and rigidity of the aortic walls may be inferred when displacement of the aorta upwards and to the left is noticed with systole. The aortic arch becomes unimportant in the supracardiac shadow when mitral incompetency is present (Figure VIII). With sclerosis of the aorta, commencing hypertrophy of the left ventricle is suggested by rounding off of its apex and should be noted as probably due to the presence of this condition. A rounded abnormal shadow associated with and interfering with the parallel continuity of the aortic walls in all views denotes aneurysm. The diagnosis is often difficult and differentiation from mediastinal new growths, encysted mediastinal empyema, substernal thyreoid enlargement and paravertebral abscess is required. The rarer conditions of hydatid and dermoid cysts are also kept in mind. In this regard it is desirable to refer to the value of the fluoroscopic demonstration of expansile pulsation. It may be a prominent feature in the early progress of aneurysmal formation. As the aortic wall becomes thinned, its elasticity is lost, with consequent failure to respond to the heart's contractions. The presence of blood clot and

inflammatory changes in the adventitia confuses the original clear-cut radiographic outline and adds to the diagnostic difficulties.

Direct information concerning the type, site and extent of aneurysms of the aorta is sought in the manner previously described (Figures XII and XV). Indirect evidence is revealed by studying the effects of pressure on the tracheo-bronchial tree (Figure XVI), barium-containing gullet, and sternum and spine.

The differential diagnosis of aortic dilatation in patients with luetic aortitis or arteriosclerosis with or without arterial hypertension is usually not possible from the radiological findings alone.

The calcified plaques accompanying aortic atheroma are visible in the aortic walls, even when of limited extent.

The aortic defect visualized in the left anterior oblique position is pathognomonic of the rare congenital condition called aortic coarctation, or stenosis of the descending part of the arch. There may be erosion of the posterior parts of the upper ribs by the hypertrophied, tortuous intercostal arteries as a confirmatory sign.

This brief sketch of the radiological method applied to cardiology is made with full recognition of the work of radiologists and physicians interested in its progress. Their writings are freely consulted and followed in practice.

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LEGENDS TO ILLUSTRATIONS.

FIGURE VI.—Generalized cardiac enlargement. Chronic myocardial degeneration. Relative valvular incompetence.

FIGURE VII.—Prominent pulmonary cone and enlarged right ventricle. Patent *ductus arteriosus* and defective interventricular septum. Infective endocarditis with pulmonary emboli.

FIGURE VIII.—Enlarged left auricle (plainly seen through heart shadow in original film with extension to the right border of the heart in its upper half) and enlarged right ventricle. Mitral stenosis.

FIGURE IX.—Enlargement of left ventricle. Myocarditis.

FIGURE X.—Generalized increase in area of heart shadow. Pericarditis with effusion.

FIGURE XI.—Undue prominence of pulmonary cone. Adult female with obscure cardiac and respiratory symptoms. Diagnosis uncertain.

FIGURE XII.—Generalized aortic dilatation.

FIGURE XIII.—Bilateral type of mediastinal tumour. Complete regression following therapeutic irradiation. Diagnosis, lymphosarcoma.

FIGURE XIV.—Increased width of mediastinum with prominent rounded shadow anteriorly over area of pulmonary cone. Pathological report, lymphosarcoma.

FIGURE XV.—Sacular aneurysm of ascending aorta.

FIGURE XVI.—Massive collapse of left lung due to aneurysm of descending aorta compressing the left bronchus.

FIGURE XVII.—Enlarged left auricle, left ventricle and right ventricle. Rheumatic mitral stenosis and aortic regurgitation. Relative tricuspid incompetence. Recurring periods of decompensation.

Reports of Cases.

TWO CASES OF DUODENAL STENOSIS AND ATRESIA.

By RUSSELL N. HOWARD, M.D. (Melbourne),
Melbourne.

I REPORT the following two cases of duodenal stenosis and atresia with the kind permission of Dr. Stewart Ferguson, Honorary Physician to In-Patients at the Children's Hospital, Melbourne.

It is interesting to note that both patients, suffering from what is a very rare congenital abnormality, were admitted to hospital within one month.

Case I.

Clinical History.

A.I.F., a male, was admitted to hospital on July 4, 1932. He died on July 5, 1932. His age was five days; he was one month premature.

The family history was that there were three other children alive and well. The mother had had no miscarriages.

The history of the present illness was that the child was breast fed. Ever since birth he had vomited about half an hour after every feed, occasionally sooner; vomiting was not projectile; the vomitus contained bile. The bowels were open about twice daily, the stools being small and greenish black. The birth weight was 2·6 kilograms (five pounds fifteen ounces). His weight on admission was 2·2 kilograms (five pounds).

Examination showed that after a feed of sixty cubic centimetres (two ounces) the whole of the upper part of the abdomen was distended by a mass running from the left costal margin to the right loin. This mass was obviously cystic and not solid, and disappeared when the babe had vomited its feed. The vomitus was observed to contain bile. A stool passed in hospital was typical meconium.

The babe was given a feed of sixty cubic centimetres (two ounces) of Nestlé's condensed milk, one in twelve, containing 4·0 grammes (two drachms) of barium, which was not vomited, and three hours later the child was examined by the fluoroscopic screen. A large blob of barium was seen about the region of the right loin and right iliac fossa, extending medially to almost the mid-line and showing a fluid level (in erect posture). On rotating the child under the screen this mass did not move much, but only showed a change in the relative position of the fluid level. In addition to this, a second small mass of barium with fluid level was present in the position of the normal stomach. On rotating the child under the screen, this mass moved round, showing that it was in a fairly large cavity.

The child was then given a feed of 30 grammes (one ounce) of barium and Nestlé's condensed milk, which was seen, under the screen, to pass down the œsophagus and to become confluent with the second mass just described, proving this mass to be in a dilated stomach. Next, with some difficulty, by palpatory manipulation, most of the first described mass (not all) was able to be pushed into the second, the two apparently being joined by a narrow channel.

The child died the next day.

Autopsy Findings.

The stomach and duodenum were both greatly dilated, communicating through a very lax pylorus. The duodenum ended absolutely blindly at the region where the duodenal-jejunal flexure should have been. The blind end was connected to the jejunum by a fibrous cord about five centimetres (two inches) long. No other areas of atresia were present. The gall-bladder and bile ducts were dilated

and there was evidently some stagnation of bile in the liver. The lungs showed a considerable degree of bronchopneumonia.

Case II.

Clinical History.

Y.P., a female, aged fourteen days, was admitted on June 4, 1932. The patient was the first child of normal parents. Her birth weight was 3·4 kilograms (seven pounds six ounces). The child was regularly breast fed, but ever since birth had vomited shortly after or during feeds and the vomitus was bile-stained. It was never projectile. The stools were infrequent, small and greenish in colour. During the first week the child lost 0·45 kilogram (one pound) in weight, but during the second week it put on 57·6 grammes (two ounces).

Examination revealed nothing more definite than a small wasted baby with no other obvious abnormality.

Radiological examination after a barium meal was conducted under the X ray screen, the same technique as previously described being used. Two distinct masses of barium were seen in the abdomen, each with its own fluid level (in the erect posture). These masses were adjacent to one another, the left-hand one being in the region of the normal stomach. On rotation of the child the left-hand mass was seen to move round quite a large cavity and the right-hand mass around a smaller cavity. By posturing and with aid of palpation either mass could be made to pass through a small opening into the other but neither cavity could be completely emptied. A further barium feeding was seen to pass into the left-hand mass. The provisional diagnosis of duodenal obstruction was made and laparotomy performed on the day of admission.

Operation revealed what appeared to be a dilated hour-glass stomach. Some developmental adhesions appeared to be binding the stomach to the region of the *porta hepatis*; these were divided. The pylorus was thought to be felt beyond the second compartment of the stomach. No constricting influence was able to be demonstrated, nor was any stenosis observed. The small bowel was somewhat collapsed. The condition was thought to be a congenital hour-glass stomach.

After operation the child was fed every two hours on expressed breast milk complemented at first with Nestlé's condensed milk, one in ten, and then with Bengerized milk, and atropine was administered, but despite this for the next week about half of every feed was vomited. About two stools a day were passed, greenish brown in colour and small, but later containing definite fæcal material and becoming slightly green only.

At the end of a week the vomiting became less frequent, two to three times daily, and the child was fed on a mixture of Nestlé's condensed, Nestlé's malted and boiled skimmed milks.

A month after admission to hospital the child was very ill and wasted, and weighed only 2·5 kilograms (five and a half pounds). Ninety cubic centimetres (three ounces) of paternal blood were given by the fontanelle route with marked improvement.

On the same diet the child began to gain weight, although still vomiting two to three times a day. About three stools a day were passed, small, but otherwise normal. During the next three weeks 0·33 kilogram (three-quarters of a pound) was gained and the child raised to a diet of boiled milk and barley water with cane sugar and "Maltogen" added. From this period, however, she went steadily downhill. The vomiting persisted as before, but diarrhœa ensued, with greenish liquid stools containing much mucus. Despite a second blood transfusion, the child died on August 21, 1932, at the age of three months.

Autopsy Findings.

Autopsy revealed a greatly dilated stomach, a normal, though lax and widely patent, pylorus and a greatly dilated first and second part of the duodenum, into which the common bile duct opened. The opening connecting this with the third part of the duodenum was about the size of a pin's head. The rest of the intestines showed no evidence of stenosis or atresia. No other abnormalities were detected.

CONFUSING FEATURES IN THE DIAGNOSIS OF ECTOPIC GESTATION.

By R. Francis Matters, M.D. (Adelaide), M.C.O.G., D.G.O.

Difficulties encountered in the recognition of a case of ectopic gestation are shown in the following two cases admitted within twelve hours of one another.

Case I.

The first patient was admitted to the Adelaide Hospital on January 9 with a diagnosis of renal colic. She also had a history of gastric ulcer some two years earlier, and there had been trouble in this direction since.

On the morning of January 9 the patient was worried with "colicky pains" and later had been seen by her doctor, who found the pains to be mainly in the right lumbar region. The patient was admitted with a diagnosis of renal colic, but the admitting officer found that she was very tender in the epigastrium and that her pulse was difficult to feel and that her heart rate was about 112 beats per minute.

There were indications of considerable shock and the patient, although not *in extremis*, was very ill, and the condition was regarded as being a ruptured gastric ulcer.

The menstrual history was quite satisfactory and the rhythm quite normal, the last menstrual period being two weeks earlier.

Although she had been married for seven years, there were no children and the patient was told that she could never have children. A vaginal examination by a colleague of the admitting officer revealed no bleeding, but some considerable tenderness, especially in the left fornix. The surgical registrar next saw the patient and considered that a ruptured ectopic must also be considered.

Shortly afterwards I was called to see the patient, who was in a very poor operative condition. She had an anxious expression, a dry tongue, a very weak and slightly irregular pulse and free fluid in the abdomen. A bogginess was felt in the posterior fornix on vaginal examination, a tender thickening in the left fornix and no enlargement of the uterus.

The case was considered to be one of extrauterine pregnancy which had ruptured, and immediate operation was performed. I used the usual mid-line incision and found the cavity filled with blood; the blood was strained through gauze into warmed citrate solution. The tube was excised and a rapid peritoneal toilet made.

Because the condition was very bad, I autotransfused the patient as soon as the abdomen was closed and then treated her on general lines for shock.

Case II.

The second case was that of a woman who had three children and who said that she had been pregnant again, but had miscarried. She had not menstruated since October until about two weeks before the time of admission, when she thought that she had miscarried. She showed a keen desire for curettage of the uterus, and because of this several doctors who saw her doubted her statements. On January 9 she was admitted to hospital because of the bleeding, although the cervix was not dilated, but it was thought that there was an incarceration of a retroflexed gravid uterus.

The patient was very fat, and this rendered bimanual examination unsatisfactory. The large mass in the posterior fornix was semi-cystic and did not move with the cervix, although the uterine body could not be felt separately, nor was the cervix patulous. Laparotomy was decided upon for a possible ectopic gestation or ovarian cyst of the pseudomucinous type.

The mass was found to be a large unruptured hæmatosalpinx due to extrauterine pregnancy in the ampullary end of the right tube. There was some degree of adhesion, but the whole tube and contents were removed without very much difficulty.

Discussion.

These two cases, of similar origin, gave very different symptoms and signs. The first patient had no vaginal

bleeding nor alteration of her catamenia, while the second stated that she had been pregnant and had aborted.

The first patient had severe pains all over the abdomen and was rather more tender in the epigastrium. There was free fluid in the abdomen and the patient looked very ill. Vaginal examination proved to be very painful, and it was found that the uterus was not enlarged, as far as one could discover. There was a boggy fullness in the pouch of Douglas and the tube, though not noticeably enlarged, was thickened, and on palpation with the examining finger was found to pulsate. This last sign was regarded as almost the most important, and the diagnosis was made without aspirating the posterior fornix.

The tube which had sheltered the growing ovum was engorged, but as the ovum had been expelled, it was not of any very unusual size.

In the second case the abdomen, which was very fat, made palpation *et cetera* of little diagnostic value. Vaginal examination provided information, however, which made the diagnosis obscure. There was a large soft mass in the posterior fornix, which felt like a retroflexed gravid uterus. The cervix appeared to be soft, but bimanual examination was difficult owing to the fat abdominal wall. Had posterior colpotomy been done when the mass was recognized as being separate from the uterine body, the blood clot would have been discovered, but the subsequent laparotomy might have been fraught with increased danger.

Reviews.

A RUSSIAN BIOLOGIST ON THE PROBLEM OF WOMAN.

WHY are most translations from Russia so slovenly? The book before us is no exception, even though we grant that the translation is into American, not into English.[1]

The publisher announces that "the author attacks the problem of woman's place in the social scheme from a wholly fresh view point"; but his views seem to have been familiar for the past twenty years. Apparently the book is written for the general edification and instruction of the Russian people, for the author is at great pains to defend himself from the charge of being non-Marxian.

The actual substance of the book is devoted to the handicap imposed on woman by her work of reproduction. The first four chapters deal with sex physiology and anatomy in popular fashion. The remaining chapters are in great part devoted to the sexual life of woman and its handicap to her independent social and economic existence. The essential importance of an active sexual life to both sexes is urged. The Freudian idea of sublimation is not mentioned and most stress is laid on what science may do towards lifting the burden. The first step in this direction, the author points out, is the education of the masses; he includes in the masses such people as "a scientist, a writer, a student of a worker's college, a nepman, or a one-hundred-per-cent proletarian", none of whom, he declares, regards a woman as an equal.

In the future, no doubt, more elaborate methods of biological contraception will become available to woman, so that she may enjoy complete sexual life without danger of pregnancy. Meantime, should the crude contraceptive methods of the present day fail, there remains always the legalized abortion of modern Russia. Still, "even if science does succeed in making child-birth painless and reduce to a minimum all the disagreeable manifestations of pregnancy, the necessity of serving as a living incubator for the fetus [*sic*] and adjusting one's physiological functions must continue". The author has evidently never heard of either J. B. S. Haldane or Aldous Huxley (whose respective views are set out in "Daedalus" and "Brave New World") or he might modify his opinion. But the authorities he quotes seem to be entirely Russian or German, with an occasional American.

These authorities are perhaps the most irritating part of the book. In a welter of names, which may be introduced as Doctor, Professor, Miss, or plain surname, with or without initials, there are only three references which can be checked. Of bibliography in an exact sense there is none. It may be objected that such a thing is unnecessary for a book of this type, but in this case it would be better to omit the names of authorities altogether.

One authority is striking by his absence. H. G. Wells (in the "Work, Wealth and Happiness of Mankind") deals with the woman question from a biological and economic standpoint far above that of our Russian.

It has been said that the translation is into bad American; in addition, there are a few words, such as "*dominante*", which are not translated at all; and the magic letters "etc." are used with distressing frequency. There is no index.

This book may be of interest and value to those entirely lacking in any biological knowledge and as illustrating the tendency of scientific thought in Russia, but it is hardly a profound scientific volume.

[1] "The Biological Tragedy of Woman", by A. Nemilov, translated by S. Ofental; 1932. London: George Allen and Unwin, Limited. Demy 8vo., pp. 227. Price: 7s. 6d. net.

A PRÉCIS OF SURGERY.

DR. MCNEILL LOVE'S book is called "A Shorter Surgery: A Practical Manual for Senior Students". In attempting to review a book of this kind, one asks: Does it fill a definite place in surgical literature? Some would say "no" and would prefer students to use one of the larger manuals or text books from which they can cull for themselves the most important items, with the help of what their tutors and lecturers expound and what they see in the wards and out-patient departments. But if one admits that some of these tablet books do serve a good purpose, this one in most respects is worthy.[1] The chief requisite is that it should contain no errors of commission; important omissions it must have if its size is to be kept reasonable. It will therefore be useful to point out some of the mistakes, doubtful advice and important omissions; students must be on the lookout for others that are not mentioned here.

Excision is advocated for rodent ulcer, and radium, which usually gives good results, is advised only if the site of the growth precludes operation; this qualification is much too drastic.

Radiotherapy should be mentioned as a possible alternative to operation for myeloma of bone, and the radiosensitivity of the Ewing tumour should be made known. The Orr treatment of osteomyelitis, which has been found very satisfactory by many surgeons, at least deserves mention.

Under *osteitis fibrosa* it is stated that there is an increase of phosphorus as well as calcium in the blood. In point of fact, the serum phosphorus is diminished. This mistake is repeated on page 207. The connexion between *osteitis deformans* and *osteitis fibrosa* on the one hand, and osteomalacia on the other, is doubtful. Osteomalacia is probably a definite deficiency disease and is more closely allied to rickets (page 53).

The old prescription of passive movement in the after-treatment of fractures is repeated, and the superiority of active movements is not brought out. Another obsolete practice recommended is the hand-shaking method of reducing a Colles's fracture; not that it may not be successful in some instances and helpful in others, but it is certainly not the method of choice in most cases. Good results are claimed for removal of the head of the humerus

[1] "A Shorter Surgery: A Practical Manual for Senior Students", by R. J. McNeill Love, M.B., M.S., F.R.C.S.; Third Edition; 1932. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. 422, with 96 illustrations. Price: 16s. net.

in cases of irreducible fracture through the anatomical neck, but one doubts whether the prognosis really is good; sometimes it is very bad (page 70).

On page 82 is the statement that the modern tendency is to subject fracture of the shaft of the femur to operation. In most schools this is certainly not so; it is only a small minority that require open operation.

Arthroplasty for tuberculous joints is described in many books as in this, but it should be noted that many surgeons in different parts of the world are opposed to anything short of bony ankylosis for tuberculous joints.

Renal rickets should be especially mentioned as a cause of *genu valgum*, as operation in such cases is contra-indicated.

It is stated, on page 160, that the use of a tourniquet is inadvisable in doing secondary suture of nerves; it may not be necessary, but it is certainly a great help to operate in a bloodless field, and the use of a tourniquet need not interfere with the attaining of hæmostasis.

Surely no one now practises gastro-enterostomy for gastrostaxis, as advised on page 256, "for cases in which conservative measures appear to fail"?

There is serious lack of detail of the various types of ano-rectal fistula, and no note is made of that dread calamity, division of the internal sphincter. Illustrations are particularly needed for this section of the book.

The chapters on hernia and breast conditions are well balanced and sound. The rest of the book is devoted to uro-genital surgery and on the whole this is the best part of the book. But it is wrong to speak of a 4% solution of indigo-carmine; such a strength is a suspension, not a solution, and if it is given intravenously, as advised on page 348, unpleasant symptoms may follow.

MATERIA MEDICA AND THERAPEUTICS.

THE twenty-first edition of Hale-White's "Materia Medica" appeared simultaneously with the publication of the "British Pharmacopœia", 1932.[1] The general arrangement and the contents of the book have been radically altered. The general shape of the book and the actual type previously employed have also been changed. The arrangement of the drugs has been altered completely. Where practicable, sections in group pharmacology have been placed immediately before the detailed description of the drugs to which they refer. The book is divided into two main divisions, one dealing with substances used mainly for their local actions, and the other with those employed principally for their actions after absorption. The arrangement is admittedly not perfect, but has been rightly deemed to be the best attainable. The whole subject matter has been carefully revised and especial attention directed to alterations in the pharmacopœia. Some drugs and preparations have been retained which are of established use, although deleted from the pharmacopœia, and many unofficial drugs are described for the first time. The pharmacopœial drugs and preparations, however, are clearly indicated throughout. New matter deals with the basal narcotics or basal anæsthetics. "Sodium amytal" (by oral, rectal or intravenous administration), "Pernocton" (intravenous) and "Nembutal" (intravenous or oral administration) are all barbiturates. "Nembutal" is stated to be less dangerous than "Sodium amytal". "Dial" and "Allonal", also barbiturates, are included in the book, and "Nirvanol" is stated to be "not without danger on account of its depressant effect on the respiratory centre". As regards "Avertin", it is stated that "in the majority of cases a little additional volatile anæsthetic is required". "Percaine", as a local anæsthetic, is described and its toxicity is said to be less than that of cocaine. Its anæsthetic action is more lasting than that of cocaine, and anæsthesia is attained by concentrations ten times less than required for cocaine. Suprarenal cortical extract is said to be sometimes successful in Addison's disease. "Stibosan" and "Neo-stibosan", pentavalent antimony preparations, not official, are stated to be useful in treating kala-azar. Due consideration is given to the various complex iodine compounds: "Uroselectan", "Uroselectan B" and "Abrodil" used in X ray examinations of the urinary tract, and lipiodol for similar investigation of the bronchial tree. The description of the posterior part of the pituitary body is brought up to date, and oxytocin, vasopressin and a dilator of the melanophores in the frog are all mentioned.

There are some defects, however, in the book. Eucalyptus oil is stated to be derived from *Eucalyptus globulus*, *Eucalyptus dumosa* and other species. The pharmacopœia, however, does not now indicate any particular species. In dealing with strophanthin no mention is made of ouabain, nor is sodium thiosulphate mentioned as curative of toxic effects following the administration of arseno-benzol, mercury or bismuth in syphilis. The insomnia sometimes following the use of ephedrine is not indicated, although it was that very feature which prompted its use in narcolepsy. The paragraphs on vitamins are too scanty to be of any use, particularly that on vitamin *B*. No mention is made of the various factors entering into this complex. It is merely stated to be antineuritic, deprivation inducing intestinal atony and beri-beri. The examples of prescriptions contain Roman numerals and fluid drachms, neither being countenanced by the pharmacopœia, which recommends Arabic numerals and fluid measures solely in minims and fluid ounces. On page 9 a paragraph begins with the letters M.B., which apparently should read N.B. In this paragraph it is stated that the imperial system is quoted in grammes and ounces, where it should obviously read "grains and ounces".

[1] "Materia Medica: Pharmacy, Pharmacology and Therapeutics", by W. Hale-White, K.B.E., M.D., LL.D.; Twenty-First Edition; Revised by A. H. Douthwaite, M.D., F.R.C.P.; 1932. London: J. and A. Churchill. Crown 8vo., pp. 557. Price: 10s. 6d. net.

PROGRESS IN PATHOLOGY.

THE "Recent Advance" series of books, published by J. and A. Churchill, has been extremely useful; many of them have been reviewed in these pages. "Recent Advances in Pathology", by Hadfield and Garrod,[1] is in keeping with the early members of the series, and may be recommended. The term "recent" in a series such as this is, of course, relative. Anyone who buys this book with the idea that it contains nothing but work carried out during the last year or two will be disappointed. The authors have wisely taken specific subjects and have endeavoured to describe the present state of knowledge in each. To do this it has been necessary to refer, sometimes at considerable length, to work which most pathologists would not call recent. The result is entirely satisfactory.

In bringing a book such as this to the notice of medical practitioners, even if space permitted, it would be unnecessary to discuss in detail any of the authors' views on the subjects they have selected. We would point out, however, that the subjects chosen cover a very wide field. Subjects such as the reticulo-endothelial system, tissue culture, experimental cancer research, filtrable tumours and so on, which many busy practitioners are apt to leave to laboratory workers and clinical teachers, are discussed in such a way that the average practitioner can with a little concentration learn what is needful. On the other hand, subjects of clinical importance, such as disease of the heart and vascular system, pneumonia, nephritis, and diseases of the digestive system and the ductless glands, receive special consideration. Of the present state of knowledge concerning the pathology of these conditions no medical practitioner can afford to be ignorant. This book should be read by every medical practitioner.

[1] "Recent Advances in Pathology", by G. Hadfield, M.D., F.R.C.P., and L. P. Garrod; 1932. London: J. and A. Churchill. Demy 8vo., pp. 402, with 67 illustrations. Price: 15s. net.

The Medical Journal of Australia

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THE PANCREATITIS PROBLEM.

In spite of text book descriptions, clinical reports and experimental research, there still remains a pancreatitis problem. It is true that during recent years much progress has been made, both in the clinical and experimental fields, and this progress is the result of observations by both clinicians and laboratory workers. The clinician is apt at times to sit back and to wait until research workers present him with the results of experiments and then to apply the new knowledge in the treatment of patients. More than once, however, in the history of medicine the clinician has blazed a track which has been followed by research workers and others until a well-worn path has been formed. Pancreatitis may be insidious in its onset; it is generally fulminating and in the absence of appropriate treatment almost invariably lethal. Strangely enough, when he is faced with an acute condition in a patient who has apparently enjoyed good health up to the time of his illness, a medical practitioner may not think of pancreatitis as a cause of his patient's illness and is surprised on finding the characteristic changes when the patient's abdomen is opened. The pancreatitis problem is partly that of pathogenesis and is partly concerned with diagnosis and adequate treatment.

For a concise statement of the present-day theories on the causation of acute pancreatitis, readers are referred to a paper by Balcombe Quick, in the October, 1932, issue of *The Australian and New Zealand Journal of Surgery*. Quick points out that the view is generally held that the primary lesion, necrosis of the pancreatic cells, is due to activation of ferments *in situ*. The division of opinion occurs between those who believe that the cellular and other products of lymph-borne infection constitute the activating agents, and those (the majority) who believe that the process is one in which some mechanical defect, such as blockage, or physiological error, such as spasm at the biliary outlet, brings about a reflux of bile into the pancreatic duct. The subject is surrounded by difficulties. On the one hand the results of certain investigations point to the correctness of the view that a mechanical defect must precede pancreatitis, and on the other it has been proved that an infective origin is possible. Even so distant a condition as epidemic parotitis may be a precursor of pancreatitis. Archibald has advanced the view that three factors are involved in acute pancreatitis: a change in the composition of the bile, an undue resistance of the common duct sphincter, and an abnormal rise of pressure in the gall-bladder or bile ducts. If mechanical blockage alone were sufficient to cause acute pancreatitis, it would be difficult to explain the rarity of the condition. A change in the composition of the bile might be the result of some metabolic disorder or of the action of a bacterial toxin. Again, the products of a metabolic disorder or a bacterial toxin might bring about spasm of the ducts or of the sphincter of Oddi. Sometimes there might be a congenital abnormality of ducts or sphincter. Probably the condition is dependent on a number of factors, and it is the necessary combination of these which must be discovered. This knowledge will most likely be gained by morbid anatomists and biological chemists working in association.

As far as diagnosis and treatment are concerned, the problem is a real one. In the series of cases

discussed by Balcombe Quick a provisional diagnosis of acute pancreatitis was made in twenty-one of forty-five hospital cases. In a series of sixty-four cases reported by Golder L. McWhorter, of the University of Chicago,[1] a correct diagnosis was made on only eight occasions. In eight other cases a correct diagnosis of an acute condition of the gall-bladder or of a perforated viscus was made, but the pancreatitis was not suspected. The diagnosis was wrong in forty-eight cases (75%). The most frequent mistaken diagnoses were: acutely inflamed gall-bladder, perforating gastric or duodenal ulcer, carcinoma of the stomach or pancreas, and acute peritonitis. The estimation of urinary diastase will be of great assistance. Mushin, in a paper following that of Quick in the same journal, stated that operation or *post mortem* examination in 140 cases with a normal urinary diastase revealed conditions other than acute pancreatitis. In 26 cases, each with a urinary diastase of 50 to 4,100 units, the provisional diagnosis of acute pancreatitis was confirmed. Quick, in his paper, states that if the test for urinary diastase is carried out in all acute lesions of the upper part of the abdomen, acute pancreatitis will not be missed. Mushin, in a footnote to his paper, states that after his paper was written a patient was operated on by Quick for acute pancreatitis in whom both urinary and peritoneal fluid diastase indices were normal. If light is thrown on the pathogenesis of acute pancreatitis, the problem of diagnosis may be simplified, but in any case it will always remain the problem of the clinician. At the present time the clinician will be doing all that is possible if he deliberately discusses acute pancreatitis in every acute upper abdominal affection. We cannot in conclusion do better than reproduce two quotations from Quick's paper; the first is from Deaver, the second is from Schmieden and Sebening.

> Unless a surgeon has previously seen two or three cases of acute pancreatitis or unless he keeps the condition constantly in mind, it is seldom that a correct diagnosis is made before opening the abdomen.
>
> Even today we do not give enough attention to Koerte's old warning to consider acute pancreatic necrosis in all cases developing acute abdominal diseases, especially when biliary colic has been evidenced.

[1] *Archives of Surgery*, November, 1932.

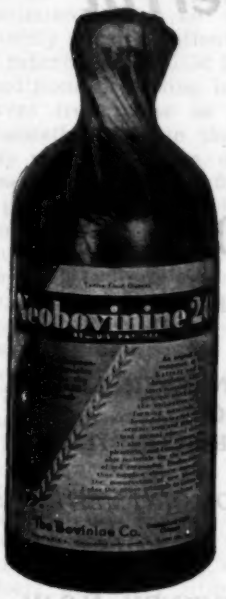
Current Comment.

THE PROBLEM OF THE ADVANCED TUBERCULOUS PATIENT.

THE subject of tuberculosis was dealt with in a symposium in this journal not long ago, and Sinclair Gillies, writing on the part played in the prevention of the disease by the practitioner and patient, pointed out the simple basic fact that as infection comes only from one source, the sputum, control in the home under reasonably good conditions is easily possible. Every man who has to carry out that most useful of all medical activities, general practice, knows of the practical difficulties of the disposal of the tuberculous subject. But it is to be feared that the great majority of medical practitioners display a kind of conditioned reflex when confronted with a patient suffering from pulmonary tuberculosis. If the disease is early, he must go away to the country or to a sanatorium suitable for such persons; if it is advanced, he should be admitted to an institution for the treatment of advanced disease. This statement is possibly not quite just, but interest in these patients is not so keen as it should be.

Advanced disease must be defined before it can be discussed. The advanced case may be regarded as one in which the progress of the disease cannot be arrested by any form of treatment. This includes both the rapid early infection and the ambulant patient whose disease is slowly advancing. This definition is given by Frederick Heaf in an article on this useful subject of the disposal of the "advanced" patient.[1] He remarks that prognosis cannot always be given, except after treatments of various kinds have been tried. This is, of course, true. He also notes the extraordinary phenomenon that has so often aroused the attention and wonder of all interested in pulmonary disease. How is it that so often the patient coming under review for the first time is found to be suffering from extensive disease although he has only had symptoms for a short period of time? Was he as fit as he said he was a few months ago, or merely optimistic? Apparently, in many cases the disease actually can be well established before evoking well marked toxæmic symptoms. The human animal can exhibit gross pathological change without undue symptoms. Cardiologists, for example, are well aware of this. Again, in such cases, is the disease of very rapid type, or have its earlier inroads been associated with unduly mild symptoms? Whatever the explanation may be, there is no doubt that medical practitioners often see for the first time persons with disease of a type unlikely to be much altered by treatment. Then there is the patient who perhaps has had sanatorium or other adjuvant treatment, but who now has a slowly progressing but inexorable disease. Lastly, there is the victim of a terminal advanced phthisis, whose days are numbered, but who must be looked after. Heaf

[1] *British Journal of Tuberculosis*, October, 1932.



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points out that the two requirements of care are that the patient's comfort must be studied and that the chances of spread of infection must be minimized. As he remarks, however, even a severely affected patient's capacity for insemination of tuberculosis should be limited to his room. The conditions prevailing in Britain are somewhat different from those in Australia, but the general alternatives remain the same. Either the patient may remain at home, or he may be admitted to a general hospital (chiefly for clearing up questions of prognosis and possible treatment), or to a special home or hospital, if available. Heaf rightly remarks that it is most uneconomic to keep such patients long in hospitals where they can derive no permanent benefit and where they may be occupying a precious bed. He also reminds us that sentiment cannot be disregarded, and where home conditions are practicable, many of these patients are better at home. Except where overcrowding exists in the home and, provided young children are not likely to be closely associated with the source of infection, there is, or should be, little risk from the tuberculous patient. It is all a matter of care and education, and workers in tuberculosis departments are frequently struck with the fact that healthy adults may be closely associated with open tuberculosis with very little risk. For too long the unfortunate sufferer from advanced disease has been regarded as a pariah, even by members of the medical profession. It is the duty of the tuberculosis worker, medical practitioner or nurse to educate the patient and his family, that he may pass his declining days in comfort to himself and safety to others. Another point of importance brought out by this author is the need for encouraging the ambulatory patient to do some light work if able to do so. The sufferer from an incurable organic disease should not be allowed to become the victim of a superadded functional one. There is nothing new in all this. But it touches an ever-present problem. All general practitioners should understand and teach that the advanced phthisical patient may remain safely in a good home. Education, preferably in an institution for a time, is highly desirable, but medical practitioners must not encourage the public in the exaggerated fear of tuberculosis on the one hand or in a grossly negligent atttiude on the other. Moreover, anyone contributing to the solutions of the domestic and economic problems concerned is doing a much more valuable work than he who can diagnose a muscular dystrophy or perform encephalography.

ULCUS TROPICUM.

The treatment of ulceration of various kinds, *ulcus tropicum* in particular, forms the major part of the work of medical officers attending to the health of natives in Melanesia and many other tropical territories. *Ulcus tropicum* (or, as Manson termed it, tropical sloughing phagedæna) is the cause of more invalidity and partial invalidity among natives than all other diseases; it may cause death, the loss of a limb, or permanent disability. It is of great economic importance. Conditions demand that treatment should be simple and cheap, while effecting a rapid recovery, enabling the patient to return to his work or his village home in the minimum of time. Many methods have been devised. Excision, curettage, the application of corrosives, and many other measures have been employed to stay the early acute sloughing process; innumerable antiseptics and methods of dressing have been used in the stages of suppuration and healing, and, when it occurs, the chronic stage. Skin grafting of various kinds has been tried, usually with little success. A treatment that is now widely used, after gross suppuration has subsided, consists in the application of adhesive plaster after the fashion recently introduced in the treatment of varicose ulcers. C. James, who has had an extensive experience in the British Solomon Islands Protectorate, advocates excision followed by the application of seed or Thiersch grafts.[1] James states that his method has been completely successful in 41 of 45 cases, and that the average period required for healing was 13 days. This is remarkable; if ordinary methods are used, an acute ulcer of, say, two centimetres only in diameter, would scarcely heal in less than 21 days.

James widely excises the ulcer, removing it in one mass, taking care to avoid piercing the base. If practicable, the deep layer of the superficial fascia should be left intact, as, if grafts are placed on deeper tissue, there will be movement, which delays healing. Any surrounding weak scar tissue is cut away with the ulcer. If the ulcer's bed is penetrated, the excision must be done again. If seed grafts are used, absolute hæmostasis is unnecessary. A dressing of paraffin wax gauze is applied; with a moist swab the seeds are firmly pressed on the base; a piece of dry gauze is laid over the paraffin wax gauze; absorbent cotton is teased and shaped to fit accurately over the whole, giving equal pressure; over this is placed a layer of cotton soaked in equal parts of glycerine and red lotion; finally, more wool and a firm bandage are applied. The patient remains in bed until the area is dry and covered with epithelium. A bandage is worn until the newly formed skin becomes strong. The whole of the dressings, excepting the wax gauze, are carefully removed at intervals of two or three days.

If this method is as successful in other hands as it has been in James's, it will be a boon to native patients and a means of effecting enormous savings to governments and industrial undertakings throughout the tropics. All tropical medical practitioners should read James's paper and should follow his carefully described technique to the letter. Unfortunately, the method has at least one disadvantage, obvious to anybody who has had to treat ignorant natives, namely, the difficulty of keeping them confined strictly to bed.

[1] *The Lancet*, November 19, 1932.

Abstracts from Current Medical Literature.

OPHTHALMOLOGY.

The Machek Operation for Ptosis.

S. R. GIFFORD (*Archives of Ophthalmology*, October, 1932) advocates and describes Machek's operation for ptosis. Six millimetres above the free lid border a horizontal incision is made, almost from inner to outer canthus, including skin and orbicularis; five millimetres above this a second incision, slightly larger, is made. This horizontal flap is cut in the middle and left attached at each end. Vertical tunnels are then made from the ends of the flap to the upper part of the brow, where short incisions are made. The skin flaps, after being denuded of epithelium by scraping, are pierced by double-armed sutures, drawn up into the tunnels and fixed there by tying the sutures at the level of the brow incision. The amount of effect obtained is graduated by the level of the upper incisions. Gifford suggests a few modifications which simplify the execution of the operation. The effect is increased if the lower incision is made, not six millimetres, but three millimetres from the lid border, and if the incisions and flaps are made shorter, thus avoiding the resistance of the internal and external palpebral ligaments. Slightly narrower flaps, three to four millimetres wide, are found equally effective. The upper incisions are always made at the upper edge of the brow and further pull is obtained by bringing the sutures out four millimetres higher than this. In complete ptosis the greatest effect possible is none too great. The stitches are left in for two weeks. Fine non-cutting needles with straight shanks and slightly curved at the point simplify the operation. The tunnel is best made with scissors from above, and the blunt end of the needle is passed through the tunnel along a grooved director. The epithelium is removed from the flap with trichloracetic acid followed by scraping with a scalpel; this is necessary to prevent a fistula from the desquamation of epithelial cells. The best dressing is a cone of X ray film cleaned of its emulsion and bound at the sharp edges by adhesive tape. It is made of a size to fit the orbital margin. The cornea may be observed through it. It is worn for at least a week, till a gentle effort to close the lid is made for the first time. The only stitches necessary are those holding the flaps.

Calcium in Progressive Myopia.

J. P. SPENCER WALKER (*The British Journal of Ophthalmology*, August, 1932) suggests that progressive myopia is due to calcium deficiency. The stretching of the sclera, the increase of the long bones, the occasional association with dental caries, all suggest this. He cites the cases in which calcium and parathyreoid extract were exhibited by mouth with good result. "Bemax" has been used in this connexion. Calcium is present in this preparation in fairly high proportion, also vitamins.

Uveitis in Purpura Hæmorrhagica.

J. S. CLARK (*Archives of Ophthalmology*, November, 1932) states that he was called in consultation to see a patient, aged sixty-two years, suffering from purpura with severe inflammatory reaction in both eyes. The patient's general condition was characterised by arthritis, with painful and swollen joints of the feet, hands, arms and legs, and red plush-like hæmorrhagic areas on the extremities and scapular and buttock regions. There was a deep beefy-red injection of the scleræ of both eyes; there was a plastic iritis with exudate and blood in the anterior chambers. A severe keratitis was also present. The iris was bound down in each eye and could not be affected by heroic doses of atropine in solution, or in ointment, or in powder form. Benedict has stated that the ocular signs of purpura are few and that the lids are rarely the seat of hæmorrhagic deposits, although hæmorrhages into the optic nerve and retina have been noted. Ten months later the right eye was removed on account of persistent pain.

Bacteriophage in Ophthalmology.

A. E. TOWN AND F. C. FRISBEE (*Archives of Ophthalmology*, November, 1932) recall the work of Twort and d'Herelle on lytic agents upon bacteria. The bacteriophage is a filtrable lytic agent which acts upon living bacteria, developing at their expense; it is reproducible in series and is highly specific in its action towards particular strains of bacteria. Such bacteriophage has been found for plague, typhoid, diphtheria, cholera, colon bacillus, pneumobacillus, staphylococcus, streptococcus and gonococcus. MacNeal and Frisbee have reported a series of fifteen cases of staphylococcus septicæmia in which recovery followed the intravenous administration of bacteriophage in seven cases. Other conditions have been treated successfully, such as osteomyelitis, typhoid, dysentery, and especially cholera. Before bacteriophage could be used in ophthalmology, it had to be determined whether the responsible organism was actually lysed by any one of the races of bacteriophage. Only when the responsible organism was completely lysed by a given race of bacteriophage was the resulting lysate employed as a potential therapeutic agent. Up to the present time the authors have treated successfully twenty ophthalmological patients with bacteriophage. It was found that the pneumococcus was the pyogenic organism present in 66% of the cases of dacryocystitis, but so far no bacteriophage for pneumococcus has been discovered. In two cases in which the staphylococcus was the infecting organism, the sac was irrigated with staphylococcus bacteriophage with a satisfactory result. Orbital abscess, hordeolum and meibomianitis have been successfully treated. The phage was injected locally and subcutaneously into the arm daily. A staphylococcic corneal ulcer was quickly cured. Bacteriophage must be used scientifically, and the clinician must have the cooperation of the bacteriologist or he will be disappointed.

Sclerosis of the Cerebral Basal Vessels, Optic Atrophy and Cupping.

A. KNAPP (*Archives of Ophthalmology*, November, 1932) draws attention to a condition marked by optic atrophy, cupping of the disk as seen in glaucoma, changes in the field, but no rise in intraocular tension. The explanation that during a preceding stage the tension was sufficiently high to cause cupping, but afterwards fell to normal, does not seem convincing. The possible presence of sclerosis of the basal vessels of the brain causing an optic atrophy by pressure suggested itself to the author as a possible cause. Several authors, beginning with Türck in 1852, have previously suggested sclerosis of the basal arteries as a cause of optic atrophy. Schüller, in 1921, demonstrated X ray changes for the first time; Hornicker, in 1924, reported that sclerosis of the basal vessels can be demonstrated in the living by X rays. The author gives a short history of ten cases. The sexes were equally divided and the ages varied from fifty-three to seventy-five years. The field changes had a tendency towards altitudinal defects, and were not like the usual changes in glaucoma. Tension varied from 14 to 31, averaging 20. X ray examination showed calcification of the internal carotid, posterior communicating and ophthalmic arteries. The course of the disease in some cases was stationary, in others the progress was very slow. An operation for glaucoma was performed in two cases without effect. The clinical findings show that the condition differs from glaucoma and that an operation need not be considered.

OTO-RHINO-LARYNGOLOGY.

Natural Orifice of the Maxillary Sinus.

M. C. MYERSON (*Archives of Otolaryngology*, May, 1932) gives his experience of irrigation without puncture through the ostium of the maxillary sinus. An attempt was made to enter the normal ostium in 170 maxillary sinuses. One hundred and thirty-eight, or 81%, were successfully entered, and 32, or 19%, could not be entered. The Pierce cannula and the author's modification of this instrument were used. The author reminds readers that the ostium lies horizontally, obliquely and vertically. In this series 34 were horizontal, 6 oblique, and 98 vertical. The proximity of the middle turbinate to the lateral wall does not appear to interfere with the passage of the cannula into the maxillary ostium. There may be an

occasional exception; in this study there was one in 138 instances. The height or prominence of the uncinate and the depth of the infundibulum do not always interfere with the successful passage of the cannula. The angle (bulla-uncinate angle) formed by the posterior upward curve of the bulla and the posterior downward curve of the uncinate is the most constant guide to the location of the ostium. The author concludes that it would appear from this study that irrigation of the maxillary sinus through its ostium is a feasible procedure in a sufficiently large percentage of cases to make it worthy of a trial.

Laryngeal Tuberculosis.

R. W. WILKINSON (*Archives of Otolaryngology*, September, 1932), in a paper describing some experiences and observations of laryngeal tuberculosis, presents the conclusion that treatment of laryngeal tuberculosis offers encouraging results in many or most early cases. Every patient with pulmonary tuberculosis should have a laryngeal examination at frequent intervals; no wait should be made for laryngeal symptoms. Treatment is best carried out in a sanatorium where the pulmonary and laryngeal condition may be under careful surveillance. The most effective treatment today is electrocauterization, vocal rest and sunlight or modified sunlight.

Benign Tumours of the Trachea and Bronchi.

C. JACKSON AND C. L. JACKSON (*The Journal of the American Medical Association*, November 19, 1932), in a paper dealing with benign tumours of the trachea and bronchi, with special reference to tumour-like formations of inflammatory origin, give a list of the benign tumours and non-malignant tumour-like conditions found in their tracheo-bronchoscopic case records. They conclude that the most common of all growths encountered bronchoscopically is a tumour-like formation of inflammatory hyperplasia. Histologically, the lesion is not simply a chronic mucosal bronchitis, though, of course, the latter condition may coexist in the neighbourhood. The border-line between benign true neoplasms and inflammatory hyperplasia is often histologically indistinct. Clinically, the seriousness of the lesion depends more on the degree and the region of the obstruction it causes than on the histology of the growth. A papilloma at the bifurcation of the trachea may kill the patient by asphyxia, and a tumour-like inflammatory hyperplasia in a bronchus may produce, in the tributary portion of the lung, atelectasis, "drowned lung", pulmonary abscess, bronchiectasis or empyema, or all of these in succession. A recovery from these secondary conditions follows bronchoscopic removal of the growth, if the diagnosis is not made too late. The only way an early diagnosis of endobronchial growth can be made positively is by bronchoscopy. The only way to determine on the living patient that an endobronchial growth is benign is by histological examination of a specimen. Bronchoscopic removal of an endobronchial growth is a simple and safe procedure in trained hands. Removal of the obstructive growth reestablishes ventilation and drainage; thereby the defensive power of the lung is restored. Reexamination within a few weeks or months is indicated after removal of a benign growth from a bronchus, just as it is after removal of similar growths elsewhere in the body.

Labyrinthitis.

A. LOGAN TURNER AND J. S. FRASER (*The Journal of Laryngology and Otology*, October, 1932) present the third and concluding portion of their work upon labyrinthitis. This work is based upon experiences in the Ear, Nose and Throat Department of the Royal Infirmary of Edinburgh from 1907 to 1931. Commenting upon their work, the authors state that there are two weak spots in the diagnosis of labyrinthitis. There is, first, the question of "serous" labyrinthitis. It is usually maintained that if the patient can hear while the noise-box is in the good ear, even though giddiness and vomiting with nystagmus to the sound side are present, the case is still to be considered one of serous labyrinthitis from which the patient may recover without operation on the labyrinth. In one or two of their fatal cases following the radical mastoid operation, the labyrinth operation was delayed because the patient could still hear with the noise-box in the good ear. In such cases it would probably be better to open and drain the labyrinth by the Hinsberg operation rather than to run the increased risk of meningitis from delaying the operation. The other weak spot in the diagnosis is the question of the date at which latent labyrinthitis may be regarded as having passed into the stage of spontaneous cure. It is not always possible to get a clear history from the patient with a dead labyrinth as to a previous attack of giddiness, vomiting, loss of balancing and apparent rotation of external objects. Undoubtedly, if he can give a history of the occurrence of such an attack within a period of six months before his visit to hospital, it is wise to regard the condition as one of latent labyrinthitis and to drain the labyrinth at the time of the radical mastoid operation. If, on the other hand, the patient gives a history of an acute attack of labyrinthitis at a period of, say, a year or more before his visit, it is presumably safe to consider the condition to be one of spontaneous cure and to omit the labyrinth operation. There are, however, a certain number of cases in which no such history can be obtained, and in these circumstances the line of safety is to regard them as latent labyrinthine suppuration and to operate accordingly. In cases of circumscribed labyrinthitis or labyrinth fistula the authors hold that the question of performing the radical mastoid operation only should depend on the amount of hearing in the ear under consideration. If the hearing is good, if, for example, a whisper can be heard at sixty centimetres or more, it is advisable to perform the radical mastoid operation only and to watch carefully for symptoms which indicate that the circumscribed labyrinthitis is becoming diffuse. On the other hand, if the hearing in the ear under consideration is bad, it is better to perform the Hinsberg labyrinth operation at the time of the radical mastoid operation. In cases of acute labyrinthitis complicating acute purulent middle ear suppuration, but without indications for the Schwartze operation, they have adopted the waiting policy; that is to say, the patient has been kept at rest in bed in hospital for a period of four weeks, being closely watched meanwhile for any fever or headache. In cases of acute labyrinthitis complicating chronic purulent middle ear suppuration, however, they have adopted the more active policy of opening and draining the labyrinth by means of the radical mastoid and Hinsberg operations. If the radical mastoid operation is called for in a case of latent labyrinthitis, the labyrinth should be opened and drained at the time of the radical mastoid operation. The authors have never held the view that there is a close association between labyrinthitis and cerebellar abscess. They do not think that facial paresis or paralysis after the labyrinth operation is very unusual, certainly not in those cases in which the translabyrinthine drainage of West and Scott is carried out in addition to the labyrinth operation.

The Influence of Septic Infection of the Sphenoidal Sinus upon the Cerebral Blood Supply.

F. A. PICKWORTH (*The Journal of Laryngology and Otology*, December, 1932), in a paper dealing with the influence of septic infection of the sphenoidal sinus upon the cerebral blood supply, remarks that naso-pharyngeal sepsis has been found in a large percentage of mental hospital patients. The author attempts to show that such chronic sepsis may indirectly affect the blood supply to the brain, and consequently is of importance as a factor in the production of mental disorders. Original work is brought forward, together with evidence from the literature, to show that the cerebral arteries may be adversely affected by contiguous sepsis of the sphenoidal sinus and naso-pharynx. The mechanisms by which this takes place are discussed under the headings of diffusion of toxic substances, centrifugal spread of organisms, and irregular constriction or dilatation of cerebral vessels due to involvement of the sympathetic nervous system.

Research.

THE NATIVES OF CENTRAL AUSTRALIA.

During August, 1932, the Board for Anthropological Research of the University of Adelaide, in conjunction with the South Australian Museum, carried out another expedition for the study of the physical anthropology of the natives of Central Australia. Professor J. B. Cleland has forwarded the following report of the work of the expedition. To a considerable extent the expenses were met by a grant from the Rockefeller Foundation administered through the Australian National Research Council.

At the suggestion of Mr. Kramer of the Aborigines' Friends Association, Mount Liebig, situated about two hundred miles by track west of Alice Springs, was selected as a suitable locality. Mount Liebig itself is little more than one hundred miles from the Western Australian border. Mr. Kramer travelled over the surrounding country on camels for some weeks before the arrival of the expedition, explaining its objects to the natives he met with and informing them that the members of the expedition were friends who would give them plenty of "tucker" during their stay. Their confidence in Mr. Kramer was such that over 130 aborigines, including men, women and children, had gathered together at the camp at Mount Liebig before the expedition left.

Only about three weeks before our arrival at Mount Liebig, news came to Mr. Kramer that a native and one of his wives had been speared and his other wife abducted by a party of seven men belonging to another tribe, who had travelled about one hundred miles with the object of securing the two lubras, who were sisters, belonging to the man they killed. It appears that the leader of the party of seven, though belonging to another tribe, had as a wife another sister of these two lubras. For some reason he desired to have the three sisters as wives, and with this object undertook the raid. One of the women tried to help her husband when he was attacked and she was killed as a result. The other apparently did not raise the same objections. This event naturally upset the equilibrium of those natives more intimately associated with the scene of this tragedy.

The experience gained in these various expeditions to Central Australia has shown that if the native comes in contact with civilization he gradually becomes detribalized and is doomed to extinction. On the other hand, natives living under natural conditions and still respecting their old laws and carrying on their original customs, live a healthy and happy life. Even amongst these wild people there is a desire, probably by the most highly endowed mentally, to visit Alice Springs. The more energetic spirits are therefore likely to leave these tribes, whilst those with lesser personalities tend to remain. It seems perfectly clear that the only way in which the natives of Central Australia are likely to survive will be by shutting them off, as far as possible, from any contact with Europeans. It is therefore necessary that the aboriginal reserves located in Central Australia, South Australia, and Western Australia, and adjoining each other so as to form one large block, should be kept intact. As the tribes at present within these areas, in their annual migrations, wander outside them, it is very desirable that the reserves should be extended in size or, alternatively, that some means be devised for surrounding the reserves by a buffer area forty or fifty miles wide, separating the reserves from surrounding leasehold properties. There is no doubt at all that contact with civilization spells disaster to the Australian native.

Dr. T. D. Campbell was the organizer of the expedition, and amongst the members were included Professor T. Harvey Johnston, Professor C. S. Hicks and Professor J. B. Cleland, Dr. H. K. Fry, Mr. H. M. Hale, Director of the South Australian Museum, Mr. N. B. Tindale, Ethnologist to the South Australian Museum, Mr. E. O. Stocker, who undertook the cinema work, Mr. J. H. Gray, Mr. E. W. Holden, Mr. H. Moore, and Mr. E. Eldridge. The natives at Mount Liebig belonged chiefly to the Ngalia and Pintubi tribes. Not the slightest difficulty was found in inducing these natives, many of whom had not seen white people before, to submit to the various tests (some of them very trying), to which they were subjected. They were found to be exceedingly pleasant people to deal with, with an appreciation of humour and an intuitive knowledge of how to do the right thing in their general behaviour. Though no precautions whatsoever were taken to prevent objects being purloined from the camp, not a single thing was taken. As the expedition had only a short time at its disposal, work had to be concentrated, and this seems to be rather an advantage than a disadvantage. The native very readily tires, and under natural conditions is continuously on the move. The novelty of a white man's camp begins to pass off in a few weeks, and, even though well fed, many natives soon want to move on somewhere else. It is doubtful whether a large camp of natives could be kept together under observation for any period beyond three or four weeks. Whether an expedition has time or not at its disposal, it is clear that in dealing with such people it will have to concentrate its efforts into a few weeks of intensive work at some fixed base in the district concerned. The admirable organization of Dr. Campbell enabled the utmost use to be made of the time at Mount Liebig.

Several interesting incidents occurred illustrating the natives' interest in our work and their desire to assist us. One man, who had seen some of his predecessors smeared with vaseline before the white plaster was applied for taking casts, appeared well rubbed over with fat when his turn came. On another occasion one of the interpreters was given a safety razor to shave the hair from the face before the plaster was applied. He found great difficulty in getting the safety razor to work satisfactorily. Finally, he discovered that it contained a little blade which could be removed out of the apparatus, and with this just held in his fingers he quickly and very dexterously shaved his fellow. He found it quite easy to manipulate the thin steel blade in the same way that he was accustomed to use a flake of quartz.

When members of the expedition were leaving Mount Liebig and had already taken seats in the motor cars, some of the interpreters came forward to shake hands. As soon as the other men saw that this was the correct thing to do under the circumstances, they came running forward from all quarters with hands outstretched to bid good-bye.

The oldest man there was completely blind; though he was blind, his authority was still unchallenged, and presumably no one would dare to cross him in any way. He was able, in spite of his blindness, to wander about the camp to a considerable degree, and it was particularly interesting to see the way in which he avoided stepping on the hot embers of the numerous little fires in the camp. As he approached one he would feel the warmth and would gradually make his way round this obstacle. It was also quite a touching sight to see him being conveyed across a rough and stony creek bed, holding on to a yam stick which one of his wives held out to him, she at the same time indicating any obstacle that he had to avoid.

Ethnological Results.

The work carried out by Mr. Norman B. Tindale has been summarized by him as follows:

Tribes and Tribal Distribution.

1. Mount Liebig (Amununga) proved to be on the western boundary of the country of the Yumu section of the Luritja tribe. Many of the members of this group have drifted in towards areas of European settlement and have become semi-permanent dwellers about the Hermannsburg Mission and outlying stations such as Redbank and Tempe Downs. A small, free-wandering group of seven Yumu people came in from Haast's Bluff.

Members of two western tribes were also attracted to the site; one group of twenty-nine consisted of Ngalia people whose country ranges from Karinyara (Mount Wedge) in the east to Pikili (Davenport Range) in the west. Included among these was one young man who was present at Cockatoo Creek during the 1931 expedition camp. These people have an eight-class marriage organiza-

tion and are closely related to the Ilpirra tribes of the region north and west of Cockatoo Creek.

The other principal group consisted of fifty-seven Pintubi whose territory ranges from Mount Udor and Alala in the east to Mount Singleton and Mount Leisler on the Western Australian border. Their marriage organization is nominally a four-class one, but is built on an eight-class pattern.

2. Routine personal, genealogical and tribal information was collected concerning the ninety-three individuals who were intensively studied by the members of the expedition.

3. Detailed genealogies were used, the work being carried out in conjunction with Dr. H. K. Fry, to obtain a detailed pattern of the social organization of the Pintubi tribe.

4. With Dr. Fry native texts of songs, legends and rites were recorded of increase ceremonies relating to the Kunka (woman), Nana nana (half-woman), Watti (man), and mallu (kangaroo) totems. The Luritja story of the Alknarinja (women with averted eyes) totem was also detailed and a full translation obtained. Short vocabularies of Pintubi and Ngalia were written down.

5. Close attention was paid to the methods employed in flint-knapping, and technological details of spear, boomerang and spear-thrower making were recorded. In addition, a collection of approximately three hundred ethnological objects was secured for the South Australian Museum collections.

6. The importance of the detailed recording of native place names and the absence of adequate maps of the area visited necessitated much research into geographical matters. A list was obtained of 332 successive watering places visited by the above-mentioned young man (Cockatoo Creek, Number 45) between August 23, 1931, and July 31, 1932. The plotting of this itinerary, checked by another, given by an older man, will be useful in determining the nature and degree of the annual movements of a native group. Physiographical and geological notes were also recorded in order that a detailed picture of the native's environment may be described.

Contact with Europeans.

The natives studied have had little contact with Europeans. The Pintubi natives observed the aeroplane of the Quest Expedition in the sky and were terrified by it. A few of the Ngalia men once met Europeans at a wolfram mining claim near Mount Hardy. The principal watering places of the Ngalia tribe in the Pikili district have been taken up (this year) as a sheep station. The early disruption of this tribe is an inevitable consequence. The Pintubi tribe are fortunate in that portion of their tribal area is included within the native reserve.

In order that full advantage may be taken of the reserves for aborigines, a detailed study should be made of the range of these peoples and the boundaries of the reserve modified to insure that they are in protected country at all stages of their wanderings.

Physiological Observations.

Professor C. Stanton Hicks has furnished the following account of the work carried out by himself and his assistants, Mr. H. Moore and Mr. E. Eldridge.

Because of the excellent opportunity offered by the field organization of the expedition, the Physiology Department of the University of Adelaide associated itself with the expedition in order to follow up work first begun in association with the Carnegie Institute of Boston, on the tribe living near Koonibba on the West Coast of the State. Although the basal metabolism of those natives was found to be some 20% below that of western Europeans, when the Benedict formula for computing surface area from height and weight was used, body measurements showed that the pelidisi computed from sitting and standing heights, was above normal western standards. This bodily divergence from the normal, together with the high summer temperature prevailing during the investigation, led to further work at Cockatoo Creek in 1931, when metabolism measurements were made on the naked aboriginal at temperatures ranging from 30° to 38° C. Surface measurements were then made, the gummed paper strip method of the Japanese workers being used. Results were obtained which made it imperative to study closely the effect of temperature on metabolism before finally drawing conclusions. At Mount Liebig during the recent investigations, only two natives were studied each day. At 6.30 a.m. the oxygen consumption by the Benedict portable method was estimated, and the greatest care was taken to secure stable clinical conditions. The natives, under promise of extra food, and with the idea that their treatment was adding to their strength and vitality, behaved as excellent subjects, lying absolutely quietly from 6.30 a.m. to 1 p.m. One native received no food until 1 p.m., the other received a piece of raw meat at about 8.30 a.m. Douglas bag samples of expired air were collected at approximately 10 a.m., 11.30 a.m. and 12.30 p.m., and analysed by the Haldane method, while a close study of pulse and respiration rate, body and skin temperature was made throughout the morning as the sun rose, the naked skin of the natives being exposed openly to the intense solar rays. The natives were then weighed and measured according to the Du Bois linear formula method of determining surface area, as well as for standing and sitting height. The blood pressure was also measured. Kata thermometer readings and wet and dry bulb temperature measurements were made to give a basis for computing cooling power, and black velvet sun temperatures were taken parallel with the skin temperatures. From these it is hoped to secure sufficient data to enable conclusions to be drawn upon the following points: (i) Whether there is a true "racial" variation in the basal metabolism. (ii) Whether the metabolism of the aboriginal is more dependent upon external temperature than is that of the clothed human being. (iii) Whether the specific dynamic effect of a protein meal on a being living near the margin of sustenance is the same as for civilized Europeans.

It may be of interest to remind readers that pulse rates may vary from as low as 45 in the early morning to as much as 100 at noon, and that the respiratory rate can rise from 10 per minute to 22 per minute over the same period. Blood pressures lie between 108 millimetres of mercury systolic and 68 millimetres diastolic, on the average, individuals of over fifty years having blood pressures of this order.

Blood Grouping.

The blood groups of eighty-four natives were ascertained, and fifty-two of these belonged to Group A and thirty-two to Group O. As previously, B was absent. In most cases the serum of each individual was tested also against European red cells of Groups A and AB, which were available amongst members of the expedition. About one hundred cross-tests between native red cells and native sera were carried out.

Pathological Observations.

Pathological observations were made on all the natives available; several interesting features were noted. As at Cockatoo Creek, pot bellies, due to gaseous distension and not to enlarged spleens, were almost universally prevalent in the smaller children who had passed the breast-feeding age, that is, from about three years upwards to an estimated age of about nine or ten. Thereafter this condition disappeared. Several individuals showed a definite but slight degree of boomerang legs (platycnemism of the tibiæ). An unexpected feature was definite bilateral prominence of the parotid glands noted in several of the individuals. The rubber-like soles of the feet were noticed again in a number, though not in all. One man had enlarged firm glands in the neck, apparently not tuberculous. The skin and subcutaneous tissues of the hands and feet of a number of individuals were thickened and coarse, and tended to crack, giving a kind of crocodile-skin appearance. Probably the extremes of temperature (the days being often in early spring 32·2° C. or 90° F. or more, and the nights perhaps being below freezing point) account for this. Otherwise the skin of the natives is very soft and velvety. The people that came under our observation when they arrived, though not emaciated, had not a particle of fat about them. They visibly increased

in size during our short stay. This absence of fat in the subcutaneous tissue probably explains the remarkable ease with which the lymph glands and other structures underneath the lower jaw could be palpated. In almost every case the submaxillary lymphatic glands could be felt, though they did not seem pathologically enlarged.

Uses Made of Animals and Plants.

Investigations were carried out as far as possible as to the animal and vegetable foods used by the natives. A study was also made of the ecological relationships of the natives on both the zoological and botanical sides. The rabbit has reached as far west as Mount Liebig, and is probably one of the most important foods of the natives. Witchetty grubs and lizards were obtained, some of which will be submitted to biochemical investigation as to their food values. Similarly, collections were made of roots, yams, cresses, parakeelya and *Solanum* berries, for the same purpose.

The native names of nearly one hundred plants and the various uses made of them were obtained. A stalked puff-ball, known scientifically as *Podaxon*, containing a mass of purple spores, was applied as a face powder by the natives for decorative purposes.

Anthropometric and General Anatomical Observations.

Anthropometric and general anatomical observations were carried out by Dr. T. D. Campbell and Mr. J. H. Gray; they comprised the following.

On fifty-six natives a routine set of thirty-seven body, head and limb measurements were carried out on standardized landmarks in accordance with the suggestions of international agreements and workers such as Martin, Hrdlička and Wood Jones.

On fifty-six individuals a set of twenty descriptive observations were made on the hair, skin, eyes *et cetera*, in accordance with the suggestions of Martin, Hrdlička and Sullivan.

On thirty-three children a detailed directional charting was made of the tracts of head and body hair, the suggestions of such authorities as Kidd and Wood Jones being followed.

Detailed notes on the teeth and the condition of the teeth and gums were made on fifty-nine individuals.

Detailed notes on fifty-four individuals on the distribution and intensity of the patches of pigmentation in the mucous membranes of the oral cavity were made.

Notes and hair directions were recorded on the eyebrows of forty-one natives for comparison with the work of Suk and Rozprym.

Special notes were made on the surface features of the hands and feet of twenty-nine natives.

Tracings were made by means of a pantograph apparatus of the spinal curvature of twenty-five individuals.

Seventy-seven samples of hair were secured, mainly of head hair, but also from other parts of the body.

Footprints were secured of thirty-one natives by the chemical-photographic paper method, showing sole features and the extent of flat-footedness.

Outline tracings of foot contours were made on seven natives.

Complete plaster impressions were secured of the teeth and gums of four natives; from these casts have been made.

The body of a newly born infant, which had been roughly buried by its mother, was secured and preserved for subsequent detailed study.

Plaster Cast Work.

Mr. H. M. Hale, assisted by Mr. Tindale, reported that the following work had been done in this section. Complete busts, including the face and almost the complete head, the chest, shoulders and portion of the arms, were obtained as moulds of two old men, two young men, two adult women, one young woman. A mould of body, head and limbs complete was made of a newly born male infant. A face mould only was made of a young woman.

This work required considerable time and patience and entailed the usage of approximately one hundred and eighty pounds of plaster of Paris.

Photography.

Approximately eighty individual photographs in full face and profile positions were taken. Altogether about 300 still photographs were obtained. These included the above routine portraits as well as ceremonial, pathological and miscellaneous features.

Cinematography consisted in the use of approximately 3,000 feet of sixteen millimetre film. This contains very valuable records, mainly in the form of ceremonial and technological procedures.

A certain amount of standard cinema film was taken by arrangement with Australasian Films, Limited. It is expected that revenue from this film will help to cover part of the expenses of the sixteen millimetre film.

Legends, Songs, Stories and Genealogical Data.

Dr. Fry has summarized the work on legends, songs, stories and genealogical data as follows:

1. A collection of legends and songs in relation to five ceremonies performed, together with translations, was made.
2. Conception stories and dreams were obtained from five mothers.
3. Data were collected relating to various legends, dreams and beliefs, and concerning various food plants.
4. Work on genealogical data. This shows the class system of the Luritja to be of the eight-class Aranda type, and that of the Pintubi a four-class nomenclature with additional recognition of the eight Luritja classes. The normal relationship terminology in both tribes is that of an eight-class system, but varies from that of the Aranda type. Marriages of cross cousins are permitted, but these are only a "little bit good". Of forty-two marriages recorded in the genealogies only two were cross cousin marriages.

Climatology.

As certain climatological data were required in conjunction with the physiological investigations, a standard meteorological screen was kindly provided for the expedition, and through the courtesy of Mr. E. Bromley, the Adelaide Weather Bureau lent a double set of instruments, consisting of both self-recording and simple barometers, thermometers, hygrometers *et cetera*. Mr. E. W. Holden undertook the supervision of this side of the work.

A very complete set of records was secured during the time in the field and represented conditions typical of the natural environment of the natives.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch of the British Medical Association was held at Saint Vincent's Hospital, Sydney, on September 8, 1932. The meeting took the form of a series of clinical demonstrations by members of the honorary staff.

Pituitary Adenoma.

Dr. Douglas Miller showed a male patient, aged fifty-six years, who had suddenly become aware of loss of the temporal vision in his left eye two years previously. This had progressed steadily to complete blindness in the left eye. Six months before he had noticed impaired vision in the temporal field of his right eye, and his visual acuity had become so poor that he was just able to discern objects. He had had occasional slight frontal headaches. He was a healthy-looking man who showed no signs of general pituitary disturbance. The left eye was completely blind. There was temporal hemianopia of the right eye and the visual acuity of this eye measured $^6/_{36}$. There was primary optic atrophy. X ray examination revealed ballooning of the *sella turcica*. Operation was performed in November, 1931. The pituitary fossa was approached by the sublabial transsphenoidal route. The floor of the

sella was found thin and ballooned. A soft plum-coloured tumour extruded, and was partially sucked out. The floor of the sella was widely removed. The nasal muco-periosteal flaps were then coapted and the wound closed.

The day after the operation the patient was well. To rough tests it was apparent that vision had returned to the temporal field of the right eye. A few days later he was able to discern objects clearly with the left eye. He was discharged from hospital at the end of ten days.

In December, 1931, the visual field of the right eye was practically normal and the visual acuity was measured at $^6/_{12}$. Central fixation had been lost in the left eye and it was therefore not possible to chart the field of vision; but the patient was able to see with the left eye. Subsequent reports showed that the improvement was sustained. At the time of the meeting the patient was able to read small print and had lost his headaches.

The cytological study of preparations made after the method of Cushing and Bailey showed the tumour to be an adenoma of the chromophobe type.

Sarcoma of the Scapula.

Dr. Miller's second patient was a male, aged forty-six years, who had noticed pain in the left shoulder early in March, 1932. The pain had been persistent and severe. Some limitation of movement had followed. Two months after the onset of these symptoms he had noticed a swelling in the region of the delto-pectoral triangle anteriorly, and sought medical advice.

At the time of admission to hospital there was a rounded firm swelling the size of a cricket ball in the region of the delto-pectoral triangle. It was smooth and gave the impression of being tensely cystic. There was marked limitation of movement in all directions at the shoulder joint. X ray examination revealed destruction of the upper part of the glenoid and the coracoid processes, suggesting a giant-cell tumour.

A course of deep X ray therapy was administered. Two months later the tumour had obviously increased in size and the patient was suffering incessant and excruciating pain. The X ray appearances then were those of an osteogenic sarcoma. There were metastases in the humerus.

At the patient's request a forequarter amputation was performed on September 5, 1932. He made a good recovery and experienced complete relief from pain.

Carcinoma of the Fauces.

Dr. Miller also showed a specimen of carcinoma of the tongue and mandible. About six months prior to the patient's presenting himself, a small ulcer on the anterior pillar of the fauces had been excised and found to be epitheliomatous. The area had then been treated by radium needling. This had resulted in the appearance of a small, extremely painful ulcer. This was then treated with diathermy, but did not improve. On examination there was an ulcer about 1·5 centimetres long and 1·0 centimetre wide, situated in the region of the anterior pillar of the fauces and attached to the mucous membrane covering the mandible. It was shallow and had a smooth yellow floor and clean-cut edges. It was extremely painful and tender to the touch. A block removal of half the mandible and the posterior part of the tongue was performed. The patient made a good recovery and experienced great relief.

Examination of sections taken through the floor of the ulcer revealed great fibrous tissue reaction, with multitudinous small groups of actively staining cancer cells scattered irregularly throughout the mass of fibrous tissue.

Carcinoma of the Floor of the Mouth.

Dr. Miller's last patient was a male who had suffered from an ulcer on the right side of the floor of the mouth for about two years. Examination revealed a typical epithelioma of the floor of the mouth anteriorly, extending from the right side of the frenulum about 1·5 centimetres and to the left side 1·0 centimetre. There was some infiltration of the suprahyoid muscles. There was no glandular enlargement.

Operation was performed on January 18, 1932. Eight radium needles of one milligramme each were implanted around the tumour and left *in situ* for eight days. The glands were dissected later. The epithelioma reacted well and healed satisfactorily. At the time of the meeting the hard "dregs" still palpable in the floor of the mouth were becoming smaller.

Sarcoma of the Pelvis.

DR. J. E. SHERWOOD showed a male patient, aged twenty-five years, who had been quite well until about a year previously, when he had fallen on his left hip. Since that time his leg was apt to give way under him. He complained of sacral pain and loss of energy.

It was obvious that he had lost weight. A tumour was palpable in the left iliac fossa, apparently in the line of the pelvic colon. Rectal examination revealed no further abnormality.

There was no reaction to the Wassermann test. X ray examination revealed displacement of the sigmoid and descending colon towards the middle line, and a filling defect of the colon. The filling defect was apparently caused by pressure from without. There was an area of increased translucency in the body of the left iliac bone. The appearance was suggestive of a large round-celled sarcoma that had undergone cystic degeneration in its central part and had broken through the crest of the ilium. No evidence of metastases was found in the thorax or spine.

At the time of the meeting the patient was undergoing a course of deep X ray therapy.

Splenomegaly.

Dr. Sherwood's second patient was a male, aged forty-five years, who complained of "feeling very run down for months". He had lived for a period of three years in Queensland. He stated that his gall-bladder had been "drained" seventeen years previously and also again one year later, following attacks of abdominal pain. Three years before the meeting the gall-bladder was removed, following a period during which he had complained of always feeling tired. This latter symptom had persisted. The patient had lost weight, did not enjoy his food and complained of occasional backache.

On examination he appeared to have lost weight. There was marked splenic enlargement. The lower border of the liver could be felt 1·8 centimetres below the costal margin; it was tender. No obvious lymph glandular enlargement could be detected. There was no reaction to the Wassermann test. The red blood cells numbered 3,500,000 and the leucocytes 10,800 per cubic millimetre. There were 63% of neutrophile cells, 3% of eosinophile cells, 29% of lymphocytes, 3% of monocytes, and 2% of basophile cells. The hæmoglobin value was 75% and the colour index 1·0. There was a slight degree of anisocytosis and poikilocytosis with a tendency towards increase in size. One normoblast was seen, but no typical macrocyte. No malarial parasites were seen.

Examination of the stomach contents by means of a fractional test meal revealed achlorhydria with total hypoacidity. The diastase content of the urine was normal. The fæces contained a number of fatty acid crystals and comparatively little undigested fat. No undigested starch or muscle fibres and no ova or parasites were seen in the fæces.

Treatment consisted in the administration of liver extract and dilute hydrochloric acid. The provisional diagnosis was Banti's disease and pernicious anæmia.

Spontaneous Pneumothorax.

Dr. Sherwood next showed a female patient, aged forty-two years, who complained of pains in the chest and breathlessness of two weeks' duration and also of morning cough for the same period. The breathlessness ensued on even the slightest exertion.

She had typhoid fever as a child and had "liver trouble" since. A brother suffered from "miner's trouble."

There were clinical signs of a complete pneumothorax on the left side. X ray examination confirmed the diagnosis and did not reveal any evidence of tuberculosis of the

right lung. Up to the time of the meeting sputum examination had not revealed any tubercle bacilli. Dr. Sherwood remarked that the physical signs seemed out of proportion to the symptoms.

Paralysis Agitans.

Dr. Sherwood's next patient was a man, aged fifty years, who complained of shakiness of the hands, which had persisted for a period of twelve months. This shakiness had lately disappeared; but he was unable to "walk without running". He also complained of insomnia. There was no history of any previous illness.

Tremor was absent; rigidity was well marked; the face was mask-like; the gait was propulsant. There was no reaction to the Wassermann test.

Progressive Muscular Dystrophy.

Dr. Sherwood's fifth patient was a male, aged forty-eight years, whose left knee had given way as he was jumping on a tram fifteen years previously. Soon afterwards he had difficulty in walking upstairs. His weakness had progressed. The patient stated that his mother had noticed he was not normal in his childhood. The patient's father was crippled for years; one sister suffered from muscular weakness and one was severely affected; four other sisters were healthy; two brothers were healthy, four suffered from muscular weakness. One brother's son and daughter were affected.

The patient's attitude in standing was with his legs wide apart, his shoulders thrown back and his abdomen protruded. His gait was waddling. On rising from a sitting position he helped himself up by pressure of his arms on thighs and knees. There were great bilateral symmetrical wasting and weakness of leg and thigh muscles, and, to a much less degree, of the forearm muscles. The *latissimus dorsi*, pectorals, pelvic muscles and extensors of the spine were affected. The facial musculature appeared to have escaped. Tendon reflexes in the affected areas were absent. There were no sensory disturbances. Dr. Sherwood remarked that, chiefly for the latter reason, the neurotic form of progressive muscular atrophy (peroneal type) had been excluded.

Syphilis.

Dr. Sherwood's next patient was a female, aged twenty-five years, who complained of having taken fits for two years. She knew when the fits were coming on. There was no frothing at the mouth or biting of the tongue, and she had never hurt herself in a fit. During the fit and for two hours after she had no recollection of events. Headache always ensued after a fit.

Examination revealed spastic hemiplegia on the left side and inequality of the pupils (left larger than the right). Both pupils reacted to light and accommodation. There was interstitial keratitis on the left side. There was a slight reaction to the Wassermann test.

Polycystic Disease of the Kidneys.

Dr. Sherwood also showed a woman, aged fifty years, who complained of a feeling of fullness, sometimes pain, in the right side of the abdomen for five years. She had had no previous illness, but had had hæmaturia recently. She sometimes experienced nausea and had lost weight. She suffered from morning headache and complained of rapidly failing eyesight. She had no urinary symptoms apart from the hæmaturia. Three years previously her condition had been diagnosed, apparently, polycystic disease of the kidneys.

Examination revealed bilateral enlargement of the kidneys and, apparently, pedunculated tumours on both sides. The circulatory system appeared normal, apart from an accentuated second sound at the base of the heart. The blood pressure readings were (systolic) 150 and (diastolic) 100 millimetres of mercury. The pupils reacted normally to light and accommodation, and the knee jerks were active. Radiological examination revealed enlargement of both kidneys and what appeared to be a small calculus in the right renal pelvis.

At the end of the second hour following the administration of urea, the urine contained 0·8% of urea. The urine was acid in reaction and had a specific gravity of 1·012. No albumin, sugar or other abnormal constituent was detected at macroscopic examination. Microscopically, squamous epithelial cells were abundant; no pus cells, blood cells or casts were seen.

Progressive Muscular Atrophy.

Dr. Sherwood's last patient was a male, aged sixty-seven years, who complained of losing the use of both arms, the left during the previous two or three months, the right during the previous one or two years. The patient stated that a bale of wool had fallen on his head five years previously.

The outstanding feature was the pronounced wasting of the muscles of both upper extremities, extending from hands to shoulder girdles. Further examination revealed awkwardness in the use of the hands, wasting of thenar and hypothenar eminences and of the interosseous regions of the hands. The paralysis was flaccid. The tendon reflexes were absent. No sensory disturbances could be detected. The absence of tendon reflexes was referable only to the areas affected with paralysis. The knee jerks were active and there appeared to be no interference with muscular power in the lower extremities and no evidence of spasticity. The abdominal reflexes were active. The cranial nerves appeared to be unaffected. No osseous lesion of the skull or spine, nor any evidence of cervical rib was found by radiological examination. The blood did not react to the Wassermann test.

Hæmorrhagic Diathesis.

DR. H. H. BULLMORE and DR. J. L. MCKELVEY showed a female patient, aged twenty-one years, who had been admitted to hospital on June 8, 1932, complaining of intermittent attacks of pain in the vagina with, at the same time, inability to pass urine. The duration of the illness had been four years. Hæmaturia and ecchymoses had occurred during the previous three months. After admission, until August 10, when splenectomy was performed, she had very frequent attacks of epistaxis and bleeding from the tongue and gums; purpuric spots developed on tongue, palate and mucous membrane of the cheeks. Coarse purpuric rashes appeared on many parts of the body, and large and small ecchymoses on the limbs.

Cystoscopic examination revealed oozing of blood from the anterior wall of the bladder. No abnormality was detected at gynæcological examination. Apart from blood, there was no abnormal substance in the urine. Blood examination revealed a moderate degree of secondary anæmia. The white cell count was normal, but the platelets were fewer than 10,000 per cubic millimetre. Coagulation time was about normal and bleeding time increased to thirteen minutes. The blood calcium content was 15 milligrammes per 100 hundred cubic centimetres. The thrombocytes on June 27 were not sufficiently numerous to estimate.

Adrenalin was injected at times during epistaxis; it had temporary effect. Protein shock in the form of muscular injections of milk at first seemed to stimulate the formation of platelets, as the count mounted to 4,000 and a few giant thrombocytes were seen in the blood smears. The improvement was temporary.

On August 3, 1932, blood transfusion was done, but it did much more harm than good. Very large ecchymoses appeared and the epistaxis became very severe. The red cell count fell to such an extent that splenectomy was advised. Transfusion with 800 cubic centimetres of citrated blood was done before the operation. Dr. Bullmore and Dr. McKelvey showed diagrams illustrating the increase in the platelet count since the operation.

Polycystic Kidneys and Pyo-Nephrosis.

Dr. H. H. Bullmore showed a female patient suffering from polycystic disease of the kidneys. At the time of admission large hard tumours could be felt on both sides of the abdomen. The left tumour reached to the mid-line. There was great tenderness to pressure over each, especially in the loins. The urine contained a large amount of pus and blood and large number of *Bacilli coli communis*. Six years before the patient had been in the Royal Prince Alfred Hospital for investigation and opinion whether it

would be wise to allow a pregnancy to proceed in view of the kidney condition (polycystic kidneys). Miscarriage had occurred. Since then her health had been poor. Intermittent swellings and pain in the abdomen had occurred. During May, 1932, pain and swelling had gradually increased, accompanied by pain with micturition, and she had continued to pass brown coloured urine.

Her father had died of "kidney disease" at the age of forty-seven years. Her mother, brother and sister were alive and well.

Treatment consisted of rest and the administration of vitamin *A*, vaccines and urinary antiseptics. Anæmia became more pronounced. Fever continued, with occasional remissions of a few days. The left kidney had receded in size and the right kidney had enlarged considerably within the two or three weeks prior to the meeting. Pyuria and bacilluria were still present. The renal function was much below normal, as shown by dye and Calvert methods. The blood urea content was 53 milligrammes per 100 cubic centimetres.

Fracture of the Humerus.

DR. D. J. GLISSAN demonstrated his method of treating simple fractures of the humerus. The underlying principle was to use simple retaining bandages for fracture of the upper end, to make use of the carefully padded chest wall as a splint, and to use the weight of the limb as an extending force. To this end the elbow was left unsupported and the patient kept out of bed as much as possible. The forearm was left so fixed that all movements at all joints below the elbow could be carried out.

In the treatment of fractures of the shaft, moulded aluminium splints of a light gauge were cut, the sound limb being used as a pattern. Careful attention was paid to the method of bandaging and the use of the portion of the limb beyond the fracture as an extending force. Movements were carried out at all free joints at the earliest moment.

When the lower one-third of the shaft was fractured, in addition to the aluminium splint to the shaft, a light plaster was applied over the lower end and carried down to the middle of the forearm in such a way that pronation and supination were not interfered with.

A patient who had been operated on for non-union of a fracture of the lower third of the humerus was shown. As long continued splinting was necessary following this operation, hinges had been incorporated in the plaster so that the patient, whilst being effectively splinted, could carry out movement at every joint of the upper limb.

Stiff Elbow.

Dr. Glissan also demonstrated a method of treating stiff elbows. This was based on the principle that in so-called passive movement, as soon as an attempt was made forcibly to extend a stiff elbow, the flexor group came into action to add to the resistance against which the operator had to pull. Similarly, forced flexion was met by the resistance of the extensor muscles. Dr. Glissan remarked that the method described insured relaxation of the antagonistic group by making the active group contract normally. A heavy smooth weight was placed on a smooth table. The flexed limb was placed in front of it, with the ulnar border of the lower forearm in contact. The limb was then extended by the patient, who had to push the weight forward as he extended the limb by his own strenuous muscular efforts. Next he placed the extended forearm about the weight so as to pull it towards him as he flexed the limb. The method had been put into use some eighteen months previously and had replaced all forced movements very satisfactorily.

Correspondence.

PROPRIETARY DRUGS.

THE following letter is published at the request of the Council of the Victorian Branch of the British Medical Association.

FEDERATED PHARMACEUTICAL SERVICE GUILD OF AUSTRALIA.
(VICTORIAN BRANCH.)

360 Swanston Street,
Melbourne, C.1,
13th December, 1932.

The Secretary,
The British Medical Association,
426 Albert Street,
E. Melbourne, C.2.

ETHICAL PROPRIETARIES.

DEAR SIR: I am desired by the State Branch Committee of this Guild to submit to your serious consideration some aspects which are of moment to both the medical and pharmaceutical professions in the employment of what are usually termed "ethical" patents and proprietaries.

My Committee is seriously concerned to note that these types of preparations are with increasing frequency prescribed by a number of physicians either outright "in original package" or more commonly in such a manner that the pharmacist who is required to fulfil the prescription is at a loss to know whether it is the intention of the physician that it should be "dispensed" or whether the preparation is to be handed over to the patient in its original container.

I am desired, therefore, to ask the co-operation of your Association in order that when these types of preparations are ordered by your members the order for "original packages" be avoided if possible and the order be treated as a substance to be "dispensed".

The ethics of pharmacy generally are sufficiently observed to ensure that the orders of the physician will be correctly fulfilled and if the suggestion cannot receive your full acceptance pharmacists will have no option but to hand over the article as ordered, in its original container, without any advice or directions, other than those which may be given on the package.

It is submitted that the ordering of these ethical proprietaries in such a manner as to indicate an "order", and not a prescription to be dispensed, is actually more detrimental to the interests of the medical profession than it admittedly is to pharmacy.

It is evident that when this method is adopted patients become fully aware of the full details of such preparations. Not only does this tend to self-medication by the patient, but it also leads to advice by the patient to neighbours and relatives to obtain the same proprietary article for any complaint which appears to resemble the condition from which the first patient suffered. Where the preparation does provide a suitable adjunct to the physician the supply in the original package tends to produce a popularity that leads the public to obtain it direct from the chemist without consulting the physician.

It is trusted that the views submitted will be appreciated and that your members may recognize the difficulties it is sought to obviate.

I would take the opportunity of further submitting the difficulty with which many pharmacists are confronted by the increasing flood of these "ethical" proprietaries. Some of these are employed by the medical profession with fair regularity but many are called for at very infrequent or irregular intervals.

This renders unavoidable the stocking of such preparations and the "locking up" of capital upon which the return is at best very slow and at times becomes an actual loss.

This gives additional force to a complaint repeatedly submitted to my committee when a patient advises the pharmacist that "doctor told me it would cost" a specified amount.

Apparently this is the price mentioned by the doctor and is obviously the wholesale price frequently stated upon the literature supplied with the article or by the agents of the preparation.

It will be conceded that pharmacists who have expended capital in the purchase of preparations so

as to be in a position to render a complete dispensing service, are fairly entitled to determine the price at which they shall be sold and the quotation of a price by a medical practitioner who is not trading in the goods creates difficulty for the pharmacist and with the patient, who cannot possibly be aware of the irregularity or casual demand for many of these lines.

I understand that this subject has been brought under your notice by the Pharmaceutical Society and that it has been discussed at different joint district meetings of doctors and chemists. My Committee is in full accord with the views placed before your Association by the Pharmaceutical Society on the ethical side.

It is the desire of both bodies to promote the greatest degree of reciprocity and co-operation between the professions, and it is felt that a clear statement of such facts as these will receive your careful and sympathetic consideration as well as your acquiescence if that mutual good will and assistance which are so desirable are to be maintained.

Yours faithfully,

(*Signed*) A. R. Bentley.

State Secretary.

THE FUTURE OF MEDICINE AS A PROFESSION.

Sir: The correspondence on the above subject has been of a definitely helpful character in showing up the various viewpoints. Apparently specialists, suburban and country practitioners, all agree: (i) That the scope for private medical practice at remunerative rates is steadily narrowing down; (ii) that public medical services at reduced rates, and in many cases at free rates, are steadily increasing; (iii) that abuse of the latter is contributing to the former. We may agree that hospital facilities should be available to all who need. Surely all members of the medical profession should be allowed to use the facilities provided by government money in hospitals to assist them in the treatment of their patients and in the conduct of their practice generally.

I entirely agree with the President of the Queensland Branch of the British Medical Association in the address published in this week's issue of The Medical Journal of Australia, and think that spoon-feeding the general public by the use of baby clinics free to all is totally unnecessary. It would be much more satisfactory for governments to concentrate on giving free laboratory assistance to genuine cases and subsidize all practitioners who can show by returns that they are giving the public over a certain percentage of free treatment. This would avoid overcrowding at public hospitals, decentralize medical services, particularly for all minor complaints, and place the responsibility for actual hospital services on outside medical men instead of junior resident medical officers with limited outlook.

To conclude and summarize: Realizing that in the present period of economic difficulty the general tendency is towards public medical facilities, and away from private practitioners, I would suggest appointing every medical practitioner as a Government Medical Officer. His duties would be to keep an accurate record of all patients treated free and all cases referred to general hospitals for treatment. Such returns to be forwarded at stated periods, that is, quarterly, and paid for by the Government at fixed rates, which would be considerably below private fees. Also to make it a rule that no patient should be allowed attend any public hospital without a letter from a private doctor stating he is a suitable case for hospital treatment. This is not a remedy, but a suggestion.

Yours, etc.,

H. T. Illingworth, M.B., Ch.M.

Boonah,
February 14, 1933.

MODERN OPTOMETRY.

Sir: It is unfortunate that neither your leading article nor the contributions of your correspondents are calculated to smooth the way towards a better understanding of the subject under discussion.

Is it necessary to point out that the so-called "optometrist" is a man very similar in character to the average of his species, in which I would include, if I may without offence, the so-called "ophthalmologist"? At his best, the optometrist is a highly conscientious and expert refractionist, but only recently escaped from the "trading atmosphere" of the shop from whence he emerged. He is an optometrist because there is a public demand for the services of non-medical sight-testers, for the reasons following: (i) He is competent, (ii) he is less expensive than the ophthalmologist, (iii) there are not enough of the latter to cope with the work.

His services are sought by persons who require spectacles to improve their vision, and by many more who seek amelioration from headaches and nervous strain. The latter form a class by themselves; many of them have "been through the mill" of physicians, ophthalmologists, optometrists *et cetera*, and bring with them sheaves of prescriptions for glasses none of which supplied that relief of which they are in search.

Being a conscientious person, the optometrist takes the keenest pride in sending these cases on to those who are most competent to do them some good, and to further that end he learns to distinguish between the symptoms of headaches of ocular origin, nasal block, high blood pressure, anæmia or, perhaps, some dental trouble. Naturally, he desires to learn, and realizes that he has most to learn from members of the medical profession, some of whom have a gift for imparting, in simple language, the sort of knowledge which it is essential he should learn.

Following the example of other professions (his work is professional, though not always his character, which applies also to other professions), he has fought for and gained the recognition of registration by act of Parliament. And it was just at this stage of his evolution that the medical body repeated the mistake which had formerly been made with respect to dentists, nurses, and, I think, veterinary surgeons. Some day it will be recognized that it would have been wiser, in the interests of the public at least, if such legislation as has been enacted could have been so guided as to provide a higher standard for the optometrist and greater facilities for his control. Instead of this, the medical profession bitterly opposed legislation, occasionally in such a manner as to cause unnecessary ill-feeling, of which the present emanation in the columns of your journal is perhaps the aftermath.

You charge the optometrist with arrogance. For my class I plead guilty, but our arrogance is rather the pretentiousness of youth than real genuine arrogance. For examples of that we must seek elsewhere. And such arrogance as we display could be quickly turned into humility if optometrists could be employed as refractionists at the public hospitals, when that skill which they undoubtedly possess could be put to a useful purpose and save the more valuable time of the medical officers, while, by contact with them, they would also learn much which is at present lacking in our training.

It is necessary to emphasize that the optometrist has specialized in his study of the correction of errors of refraction. It is his living, and his claim to professional status, which is at present his highest ambition. He understands it and practises it infinitely better than does the average ophthalmologist. I know many optometrists whom I would engage in my consulting rooms, but very, very few ophthalmologists. Nor is this singular to Australia. Go where you will, to the big English ophthalmic hospitals, to Harley Street, wherever ophthalmologists are found, their refraction work is usually poor and not infrequently very bad. They never seem to have a flair for this section of their work. Why not turn it over to the optometrists? But so long as they continue to practise optometry, the medical profession generally must accept full responsibility for the conditions which have made this state of

affairs possible. So long as it remains possible for any elderly medical practitioner to retire from his general practice for a few months, or sufficient time for him to procure a new brass plate, and then to reappear as an ophthalmologist, then you must be prepared to receive the scorn of the non-medical optometrist, who knows how long it took him to master only that branch of ophthalmology which he has made his special study.

Nor is the "new army" of trained (save the mark) ophthalmologists referred to by Dr. Pockley calculated to mend matters. Anyhow, why bother to train them? In England the British Medical Association just issued a circular calling for volunteers who were willing to do this work of sight-testing. Mere routine work, of course!

It has been stated that optometrists are a danger to the public because they cannot recognize diseased conditions. Our greatest pride is to send on to an ophthalmologist for treatment a case presenting a pathological condition, particularly when it has already escaped detection by another ophthalmologist. My own Western Australian Optical Association provides among its rules that each member must make an ophthalmoscopic examination of each eye which comes under his care, and report for medical examination every case which in his opinion is of a pathological nature. If the medical body had had the foresight to see that such provisions were embodied in the acts for the registration of opticians, there would now have been no cause for a complaint of arrogance.

No one knows better than the optometrist that he cannot "invade the realm of medicine", nor has he any desire to do anything of the sort. But many of the cases which seek his advice are essentially medical cases, and he has no wish to mislead them. That has already been done by those who should have known better. That the optometrist frequently finds himself in a false position must be patent to all. The knowledge he desires and seeks, not always at the correct source, is not intended for the purpose of self-aggrandisement, but for the protection, against his own ignorance, of those who seek and trust him.

Surely he is worthy of other consideration than the "get off the earth" attitude which seems to have inspired some of the letters which have recently appeared in your columns.

Speaking personally, I have now been in practice as an optometrist for thirty-five years and welcome this occasion to acknowledge my enormous debt of gratitude to those many members of the medical profession who have most generously sought to arm and guide me against the snares and pitfalls which so constantly beset the path of the non-medical optometrist.

Yours, etc.,

A. KNAPP.

27, Barrack Street,
Perth,
Western Australia,
February 10, 1933.

AN ECONOMIC COMMENTARY AND DIAGNOSIS.

SIR: I am glad that you opened your columns to Dr. De Garis's letter and to the correspondence which it has provoked, and I subscribe fully to the sentiment expressed in your leading article of February 18, that the medical profession should play a greater part in public life.

The preliminary training for our profession and its subsequent exercise should surely induce in us an attitude towards problems, a method of consideration and attack, which would be useful if applied in other types of scientific inquiry. The same applies, of course, to other professions, such as that of engineering, but the very phrase, "the sickness of the body politic", suggests immediately the need in the present crisis for consideration and advice such as we are, generally speaking, trained to give.

Despite the ostrich-like reactionaries amongst us, we cannot "stick to a last" which is crumbling away. Frock coats and ponderous charity are obviously out of date, and the profession is forced to realize that its finest therapeutic efforts must be restricted to the very poor and to the few rich, whilst its new and dazzling offer of health cannot be accepted by an impoverished people.

As a profession we know what improvements in health and vigour and happiness would result from the general application of our present-day knowledge of hygiene and preventive medicine, and we know that the physical requirements for this deliverance are abundant and superabundant. We know how bad even the good times were, and we also know—none better—that the sick poor of today, often the heroes of yesterday, are, in the main, of sound stock, wasted perhaps, but by no means wastrels.

Yet as a profession we make no demands; but in our councils with enormous labour we elaborate schemes of medical service which shall be self-supporting—solvent schemes for an insolvent community. Blood from stones, after the fashion of Ottawa! We support schemes of occupational guidance when we know quite well that all avenues of occupation are choked. Surely we can see, what is patent to all, that the present crisis is a monetary one, and it seems to me quite reasonable that we should demand from those in authority some evidence that the financial system is being subjected to scientific examination.

As an association we could quite properly and profitably debate such matters as the nature of money, whence money comes, and where it goes. Fundamental questions such as these seem to be omitted from the analyses of politicians and economists, yet they are relevant to our own and the general distress, and I believe that an understanding of them is essential to a satisfactory solution of our own particular problems as well as those of the community.

Yours, etc.,

JOHN DALE.

Melbourne,
February 22, 1933.

THE NEW SOUTH WALES MEDICAL BOARD.

SIR: Since the publication of our communication on the above subject in your issue of February 25 we have, by invitation of the Council of the British Medical Association, held a conference with that body in order that we might be made aware of the Council's action in connexion with the recent reconstitution of the New South Wales Medical Board.

The members of the Council assured us of their deep concern at the manner of the dismissal of the old Board, and informed us of the strong disapproval which they had expressed of the methods adopted. They also gave us full information of the action which they had taken in connexion with the matter.

We have to acknowledge that we were impressed by the disclosure of the efforts made by the Council to remedy the objectionable features which accompanied the reconstitution of the Board, and wish to express our thanks.

Yours, etc.,

EDWD. J. JENKINS.
WM. H. CRAGO.
G. H. ABBOTT.
J. A. DICK.
W. G. ARMSTRONG.
A. MURRAY WILL.

March 3, 1933.

Proceedings of the Australian Medical Boards.

VICTORIA.

THE undermentioned have been registered, pursuant to the provisions of Part I of the *Medical Act* 1928, as duly qualified medical practitioners:

Grogan, Gertrude Urquhart, M.B., 1923, Ch.M., 1927 (Univ. Sydney), Queen Victoria Hospital, Melbourne, C.1.

Wilson, Douglas Rose Campbell, M.B., B.S., 1931 (Univ. Melbourne), Dowerin, Western Australia.
Sherwin, Thomas Aylwin, M.B., Ch.M., 1911 (Univ. Sydney), D.T.M. and H., 1928 (England), Warburton.
Hallows, Gladys Isabel, M.B., B.S., 1932 (Univ. Melbourne), 409 North Road, Ormond.
Ratten, Kenneth Ernest, M.B., B.S., 1932 (Univ. Melbourne), 187, Cotham Road, Kew, E.4.
Hogg, Tulloch Graham Heuze, M.B., B.S., 1931 (Univ. Melbourne), 3, High Street, Launceston, Tasmania.
Lane, Godfrey Joseph Kelleher, M.B., B.S., 1932 (Univ. Melbourne), Alfred Hospital, Prahran, S.1.

Obituary.

ARTHUR FRANCIS LYNCH.

We regret to announce the death of Dr. Arthur Francis Lynch, which occurred on February 16, 1933, at Adelaide, South Australia.

Diary for the Month.

Mar. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
Mar. 15.—Western Australian Branch, B.M.A.: Branch.
Mar. 15.—Victorian Branch, B.M.A.: Clinical Meeting.
Mar. 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Mar. 22.—Victorian Branch, B.M.A.: Council.
Mar. 24.—Queensland Branch (B.M.A.): Council.
Mar. 25.—New South Wales Branch, B.M.A.: Council (quarterly).
Mar. 30.—South Australian Branch, B.M.A.: Branch.
Mar. 30.—New South Wales Branch, B.M.A.: Annual Meeting.

Medical Appointments.

Dr. T. McKay Barnet has been appointed Government Medical Officer at Queanbeyan, New South Wales.

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Dr. F. A. Maguire (B.M.A.) has been appointed Secretary to the New South Wales Medical Board.

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Dr. J. Bell has been appointed Government Medical Officer at Tea Gardens, New South Wales.

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Dr. V. C. Dyring has been appointed Government Medical Officer at Tweed Heads, New South Wales.

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Dr. H. Armstrong and Dr. A. E. Panting (B.M.A.) have been appointed members of the Board of Optical Registration, Tasmania, for a period of three years.

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Dr. A. M. Cudmore (B.M.A.) and Dr. P. S. Messent (B.M.A.) have been appointed members of the Dental Board of South Australia, under the provisions of the *Dentists Act*, 1931.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", page xvi.

Hobart Public Hospital, Hobart, Tasmania: Junior Resident Medical Officer.
Mater Misericordiæ Children's Hospital, Brisbane, Queensland: House Physician, House Surgeon.
Mount Bischoff Provident Hospital, Waratah, Tasmania: Medical Superintendent.
The Public Service Board, New South Wales: Medical Officer (male).

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
New South Wales: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing. Lower Burdekin District Hospital, Ayr.
South Australian: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

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